

American Artisan

and Hardware Record

Sheet Metal Work-Warm Air Heating

Vol. 94, No. 6

CHICAGO, AUGUST 6, 1927

\$2.00 Per Year

SPEEDY

DELIVERY

FROM PLANTS AT

MILWAUKEE

CHICAGO

KANSAS CITY · LA CROSSE

or from Leading Jobbers

MILWAUKEE CORRUGATING COMPANY
CHICAGO, ILL.

KANSAS CITY, MO.

LA CROSSE, WIS.

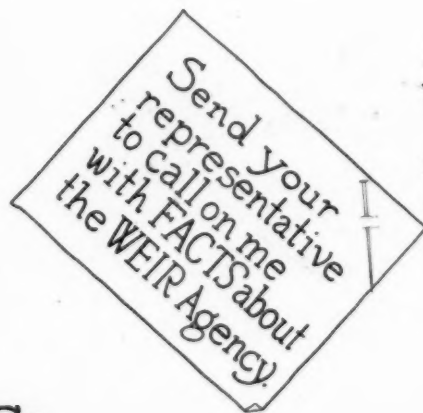
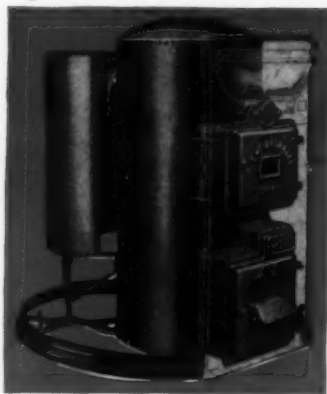
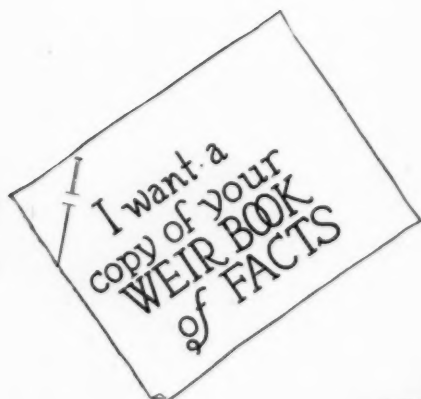
MILWAUKEE, WIS.
BOSTON, MASS.

MILCOR

SHEET METAL PRODUCTS



The
only reason why
you are not selling more
and better warm air heating is that
you lack something---Maybe it's a furnace
that you can believe in---Maybe it's a lack of
knowledge of what warm air heating can do and *is*
doing---Perhaps you need a new and bigger viewpoint
of what the public wants and *is demanding* today---
In any case if you do *good* warm air heating
and intend to get the most out of the warm
air heating game the Weir can help you
---We have a book---The Weir Book
of Facts--which will prove valu-
able reading right now---
Just attach the request
to your letterhead



The MEYER FURNACE CO.
Peoria, Illinois

FORCED AIR

HEAT ~ and ~ VENTILATION



FORCED AIR FACTS

Which get you PROFITABLE Business

- 1—60 to 100% more heat volume—guarantees 70° in every room and every corner.
- 2—Saves 30 to 40% fuel—any fuel.
- 3—Gives four air changes every hour in every room—the most healthful heat.
- 4—Gives much quicker heat.
- 5—Blows cool air up through the register in Summer.
- 6—Is simple to operate—no boilers, valves, etc.
- 7—Prevents overheating of furnace.
- 8—Cuts down heat losses.
- 9—Low first cost.



Gets You More Jobs at Better Prices

MAILING the coupon below is the first step in gaining a big advantage over your competitors.

It brings you full information about **FORCED AIR**—the most sensational development in the heating world.

Are you cutting prices in an effort to get contracts—so that profit is small even if you get the business?

Or are you getting profitable jobs by selling something better—something not all your competitors have—yet? That's **FORCED AIR**.

FORCED AIR pushes warm air up the furnace pipes in winter. It pushes cool air up in summer. It **GUARANTEES** successful heat every time. It guarantees successful **VENTILATION**, too.

New Houses

FORCED AIR heat and ventilation is being installed in thousands of houses—from modest size up to the finest residences costing \$100,000 and more—where ordinary furnace heat would not even be considered.

FORCED AIR systems are going into garages, shops, apartment buildings, churches, schools. One-floor buildings, big buildings—anywhere—because the Miles Automatic Furnace Fan will send heat anywhere.

The patented louvers close and open automatically when you press the electric button which starts or stops the fan. This is the **ONLY** system which automatically alternates **FORCED AIR** with gravity air circulation—as needed and desired.

Old Houses

Keep busy in slack seasons by converting old sick furnace systems into happy and successful **FORCED AIR** systems. Hundreds of people who have shivered all winter are waiting for you to show them this inexpensive solution to their heating problem. Hundreds of people—who have suffered during hot summer days and sleepless nights—will be glad to know that the Miles Automatic Furnace Fan will blow four complete changes of **COOL** air into every room every hour. There is a big new **FORCED AIR** market in old houses, churches, other buildings—right in your own neighborhood. Get ready to cash in on it. Send the coupon for the complete story.

THE WARM AIR FURNACE FAN COMPANY
6521 Cedar Avenue :: :: Cleveland, Ohio

THE WARM AIR FURNACE FAN COMPANY, 6521 Cedar Avenue, Cleveland, Ohio.
Kindly send me complete information about the Miles Automatic Furnace Fan.

Name _____

Address _____

MILES AUTOMATIC FURNACE FAN

Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois.
Entered as Second Class Matter June 25, 1887, at the Post Office at Chicago, Illinois, under act of March 3, 1879.

WISE The Better Furnaces

**new
WISE
Improve-
ments**



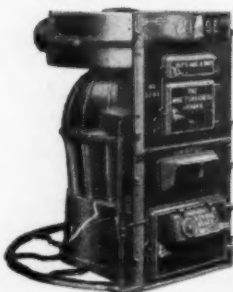
WISE OPEN DOME
CAST FURNACE

THE New Wise Open Dome is improved with the Wise Cellular Firepot.

It is One-Piece and heavily constructed.

It has a series of air cells which extend from bottom to top which enable the air to become pre-heated before entering above and into the fuel. This supplies a continuous and evenly distributed air blast.

Another feature is the Elbow Shaped Flue Collar on Inside of Radiator which is turned up so all of the heat must follow the castings to the top before entering flue.



WISE 20 SERIES CAST
FURNACE

**new
WISE
Ideas**

THE Famous Wise 20 Series has added still more fame for itself since this new Patented radiator appeared.

The feed chamber and the top radiator are so constructed as to allow communication between them which brings the opening of the fire flues of the radiator directly into the feed chamber, making the flues readily accessible for cleaning through the upper feed door. The dirt falls directly into the fire-pot, eliminating the necessity of taking the soot out by means of a narrow neck passage. This is a big advantage to the owner as a radiator that is easy to keep clean will be kept clean. And this means increased heating efficiency. This improved Wise Furnace has a New Cellular Fire Pot that provides complete combustion.

**a
New Steel
Furnace**



WISE STEEL FURNACE

TO enable you to confine your quality furnace business to one house the Wise Steel Furnace was created. Notice that the Wise Steel Furnace is a better steel furnace having features that make it last longer where others have weak spots.

The bottom of the radiator on the Wise Steel Furnace has a Cast Iron Soot Box and Clean Out.

This you know is the big weak spot in other steel furnaces. The Wise Steel Furnace like all Wise furnaces is Guaranteed high quality. It possesses all the latest scientific heating features and all modern conveniences. It is riveted and welded and has special design grates.

Write for the new Wise catalog, No. 23, just out and special circulars illustrating these New Wise Furnaces and features in detail. Be a Wise dealer now and for all time.

The Wise Furnace Company
AKRON, OHIO



**For Those
Houses Just
Being Finished**

WHAT furnace man has so good a chance to install the heating plant as the Moncrief Furnace Dealer?

Certainly no other dealer can compete with him; for no other furnace offers so many good points all combined into one as the new Series "C."

Best of all, Moncrief Dealers can offer this greatly improved furnace on a basis that enables them to compete advantageously.

*Don't delay writing for
our proposition.*

**The HENRY FURNACE
& FOUNDRY CO.**

3471 E. 49th St. Cleveland, Ohio

*We supply everything used
on a warm air heating job.*



Distributors:

Carr Supply Co.,
412 No. Dearborn St.,
Chicago, Ill.

Johnson Furnace Co.,
Kansas City, Mo.

E. W. Burbank
Seed Co.,
29 Free St.,
Portland, Me.

J. F. Conant,
Railway Terminal
Warehouse,
Troy, N. Y.

Wilkes-Barre
Hardware & Stove
Co.,

18-20 So. Washington
St., Wilkes-Barre, Pa.

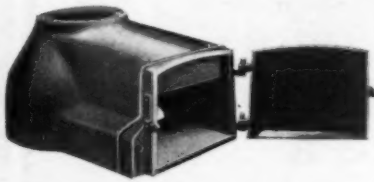
Moncrief Furnace
Co.,
Atlanta, Ga.

Moncrief Furnace
& Mfg. Co.,
Dallas, Texas

*The Series "C"
New This Year*

MONCRIEF FURNACES

Mention AMERICAN ARTISAN in your reply—Thank you!



**Frameless
Feed Door**



Frameless Doors Insure Clean Air

In the SUPERIOR Furnace the Combustion Dome and Feed Section with bottom plate are cast in one piece, and fitted with a Frameless Feed Door. No bolted or cemented joints—therefore no leakage of gas or smoke.

The Ashpit Section also extends through the front and is fitted with a Frameless Door. So there's no chance for dust to enter the air passages.

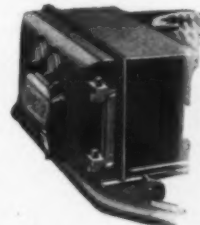
You can promise your customers *clean* air as well as warmth—a selling argument in favor of the SUPERIOR. Write for more interesting details.

Utica Heater Co., Utica, N. Y.
365 E. Illinois St. CHICAGO, ILL.

Makers of Superior Pipe and New Idea
Pipeless Furnaces

SUPERIOR WARM AIR FURNACE

**Frameless
Ash Pit Door**



SUPERIOR DEALERS ARE EXCEPTIONALLY LOYAL—WHY?

*Only real quality
can make real
profits for you—*

AND when you decide to sell steel furnaces, which you will some day, remember that the construction of the furnaces illustrated here has the features of construction that have made

“HOME COMFORT”

(TRADE MARK REGISTERED)

Steel Furnaces

famous favorites for over half century

True their construction has changed with time, but only when real quality features could be added. Recent improvements on Home Comfort furnaces have increased their heating surfaces and made them more efficient and economical consumers of fuel. (Notice the gas and soot consuming features shown on the feed door.)

We have a special circular called “A Dozen Appeals to Reason” which points out some of the “Home Comfort” features. Write for it today.

ST. LOUIS HEATING CO.
2901-11 Elliot Ave., St. Louis, Mo.

PITTSBURGH DISTRIBUTOR
Wagoner Bros., 3605 East Street

Mention AMERICAN ARTISAN in your reply—Thank you!

"Western" Boiler Plate



Have a Handsome Sample on Your Floor!

Let us send you a Western Furnace all painted up in red, black and gold, ready for your display floor.

Now is the time to interest people—early before the fall rush begins.

Write about our attractive dealers' proposition, and special selling plan on the popular selling Western Furnace. It includes long profits for the dealer and a liberal basis of financing.

The Western Furnace has many other practical features of design which make it an unusually easy and satisfactory heater to sell. Among them are the top, corrugated to take up expansion and contraction, and heavy double grates which are easily shaken from a standing position.

Every joint possible in the Western has been eliminated. The radiator walls are made of a single sheet and the front extension is one piece with the body. The collar connections have telescopic joint, asbestos packed. The Western Furnace stays dust proof.

Western Steel Products Co.

130 Commonwealth Ave.

Duluth, Minn., U. S. A.

Chicago Office and Warehouse: 3025 West Van Buren Street
Phone Nevada 6712



A high quality furnace designed according to the Standard Code requirements for Standard Code installations

The NEW FLORAL CITY QUEEN FURNACE

THE size of the casing and the relation of radiating surface to grate area have been carefully figured out according to the Standard Code and the ratings on this furnace are also as determined by the Code. That's a good selling point to make along with your Code installation—a real Code furnace.

Here are Some of the New Features:

1. Large one-piece cast radiator with extra large opening from combustion chamber with direct-indirect draft damper.
2. Smoke and cleanout collar extend through the casing and front. Throats of feed door and ash pit extend through front and both doors and throat are disc ground to insure perfect fit.
3. Only four joints inside casing and these joints are extra deep covered joints.
4. Extra large water pan—lever shaker handle—rocker type grates—heavy ribbed two-section straight fire pot—large one-piece roomy ash pit and other improvements.

Write for our agency proposition today

Floral City Heater Company

MONROE, MICHIGAN

CHICAGO OFFICE
1654 Monadnock Building

DETROIT BRANCH
4452 Cass Avenue

The latest news about the Warm Air Heating Industry is to be found in this Journal every week.

This is the only trade Journal covering this field published every week.

REX GAS FURNACE UNITS



No. 380
Unit

Write to-
day for
complete
catalog

Highly Efficient

REX Gas Furnace Units are designed to render the utmost in economical heating service.

Made in three sizes—they may be used for heating factories, store-rooms, or can be made into any kind of Gas Furnace—Viz.: Pipe, Pipeless, Twin or Auxiliary furnace.

The No. 380 illustrated has two 20-inch burners and pilot, and will heat 5 to 7 rooms.

REX FURNACE UNITS BURN EITHER NATURAL OR ARTIFICIAL GAS AND ARE SOLD WITH OR WITHOUT CASINGS.

WRITE today for our booklet which tells all about Rex Gas Furnace Units and Rex Gas Furnaces—ask about the agency for your territory.

CALKINS & PEARCE

751 East Long St.

Columbus, Ohio

Here's what one user writes about



ASBESTOS FURNACE CEMENT

The Buckeye Products Co.
Cincinnati, O.

"We have been using your Linseal Asbestos Cement for the past year and take great pleasure in advising you that it has given entire satisfaction . . . as long as this continues satisfactory to us, we will continue to place our orders with you."

**THE PECK HANNAFORD - AND
PECK CO.**

Send us a trial order—
you'll say it's great!

The Buckeye Products Co.

7020 Carthage Avenue

CINCINNATI

OHIO

GOOD NEWS for FURNACE DEALERS

THE

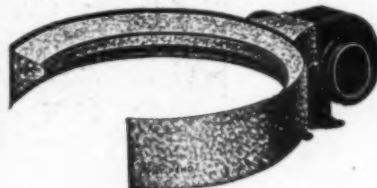


LINE

Gets You Out of the Competitive Class

The HEAT-O LINE of fan-furnace equipment—built to fit any warm air furnace—offers furnace dealers a wonderful opportunity to get out of the competitive class. It helps to improve the ordinary job—makes possible guaranteed, economical efficiency in larger jobs—work that often goes to other forms of heating.

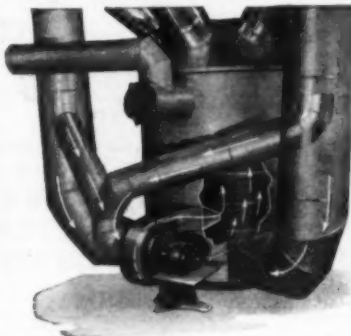
Style A Booster. An original idea, by far the most advanced step in fan-furnace heating. Shipped complete—nothing to get out of order—merely hang it inside the casing or cut a slot in it to install the booster.



Because the HEAT-O LINE is scientifically correct, designed by heating engineers of sound reputation in the furnace field—it is making good all over the country. Manufacturers—jobbers—dealers—all are enthused about its efficiency—its possibilities for larger profits—the wide field that it offers for fan-furnace heating.

BUILT TO FIT ANY WARM AIR FURNACE

HEAT-O BOOSTERS are adaptable to every furnace—cast or steel. Good installations now working with the following makes: Utica, Thatcher, International, Robinson, Gilt Edge, Mueller, Premier, Round Oak, Rudy, Richardson & Boynton, Cribben & Sexton, Moore Bros., Holland, Weir, Torrid Zone, Success, Marshalltown, Colburn, etc.



The Heat-O Booster. Draws cold air directly from the rooms or from the return air pipes. Air is discharged directly and uniformly against the hottest parts of the furnace, extracting more heat units. When the return air rises the Heat-O Booster shoots it up into the casing, through the leaders with sufficient force to overcome any resistance or cold air pressure.

The HEAT-O LINE is the only **complete** line of fan-furnace equipment and has no equal. It saves from 10 to 60 per cent in fuel consumption—makes friends for warm air heating and profits for installers. Write today—get the facts about this remarkable opportunity to build better furnace business.

ROBINSON FURNACE COMPANY

HEATING SYSTEMS DIVISION

205-7 West Lake St.

Chicago

REPAIRS

for **STOVES-FURNACES-BOILERS**

Send for our illustrated Order Blanks
NORTHWESTERN STOVE REPAIR CO. CHICAGO-ILLINOIS

EASY
TO INSTALL

CLAMPS
ON

NO
BOLTS

REVERSIBLE



CUTS
LABOR 1/3

EASY TO
REMOVE

NO TEE
JOINT

WRITE FOR PRICES

TEELA SHEET METAL CO. — OSHKOSH, WIS.

the NEW TEELA BOLTLESS REVERSIBLE CHECK DRAFT



BOLTS

WE MANUFACTURE A COMPLETE LINE OF BOLT PRODUCTS, INCLUDING STOVE BOLTS, CARRIAGE BOLTS, MACHINE BOLTS, LAG BOLTS, NUTS, COTTER PINS, ETC. ALSO STOVE RODS, SMALL RIVETS AND HINGE PINS, CATALOG ON REQUEST.

THE KIRK-LATTY CO.
1971 W. 85th St. Cleveland, O.

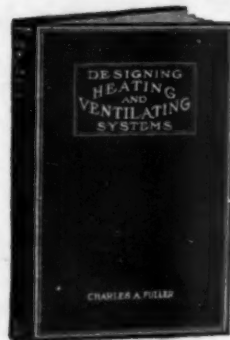


PATTERNS FOR STOVES AND HEATERS
THE CLEVELAND CASTINGS PATTERN COMPANY
CLEVELAND, OHIO

PATTERNS
FOR STOVES AND HEATERS FIRST-CLASS IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 TROY, N. Y.

IRON AND WOOD
STOVE PATTERNS
QUINCY PATTERN COMPANY
QUINCY, ILLINOIS

Books to read Now!



245 Pages,
6x9 ins.

89 Figures—
Cloth, \$3.00

Designing Heating and Ventilating Systems

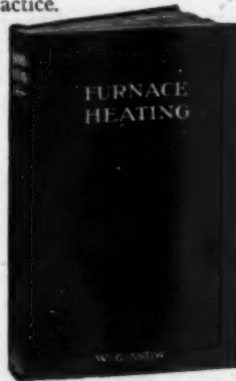
By
Charles A. Fuller
Consulting Engineer

THIS new edition, treats the practical application of engineering rules and formulas in every day use, in laying out steam, hot water, furnace and ventilating equipment for buildings of all kinds, presented in a simple manner.

This book explains the heat unit, foot pound and similar measures in such a way that the less technical mind can readily understand and apply them.

It also explains in detail exactly the same methods that the leading engineers use in determining the sizes and proportions of equipment in every day work. The quickest and easiest methods of determining the proper amount of radiator surface for a room or building of any size are described.

Plumbing and Heating Contractors will find it an invaluable reference book. Every phase of Heating and Ventilating treated is developed along the lines of the most recent practice.



258 Pages,
6x9 ins.

77 Figures—
Cloth, \$3.00

Furnace Heating

By
William G. Snow

Member: American Society of Mechanical Engineers; American Society of Heating and Ventilating Engineers

THIS practical book deals with the different types of furnaces, their design, construction and proper installation, including warm air, combination heating systems, also covering the main features of the one pipe or pipeless furnace.

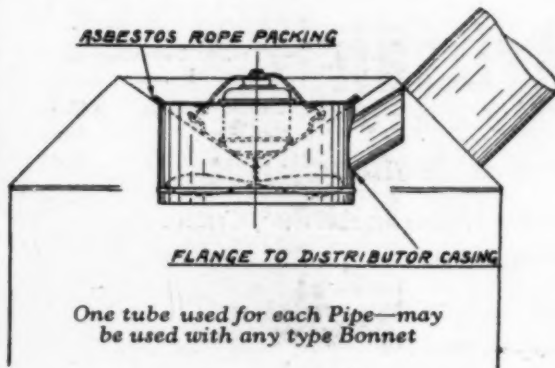
The author explains in simple English practical information on heating and ventilation of school and public buildings, churches, stores, etc. He also covers the setting up of furnaces, and describes all types of furnace fittings.

AMERICAN ARTISAN
620 S. Michigan Ave., Chicago, Ill.

Forced Air Heating is Simple and Efficient with the

ROBINSON Heat Distributor

*Notice--forcing is flexible--
directed to the pipe desired and
as much as needed--*



THE tube sizes leading to the heater pipes are measured according to the requirements of each individual pipe—tubes ranging from three to five inches may be used.

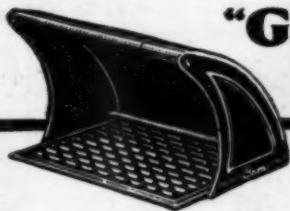
The ROBINSON Heat Distributor is equipped with a three-speed motor, giving an air delivery of 800, 1350 and 1500 Cubic Feet of Air Per Minute.

The ROBINSON Heat Distributor is easily installed in any type bonnet.

This is the Forced Air Unit being used by live dealers everywhere—write for construction details NOW!

Write for prices and installation directions today.

The A. H. ROBINSON COMPANY
MASSILLON, OHIO



"GEM" ADJUSTABLE REGISTER SHIELDS

AUGUST is just the month to be thinking about laying in a stock of "Gem" Register Shields for fall and winter selling. Fit all size registers. Oxidized copper finish, attractive and adjustable. Floor Shield retails at \$1.50. Wall Shield at 75c.



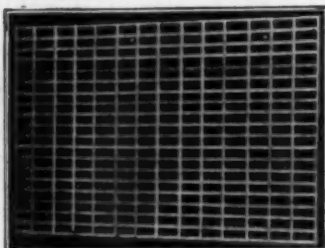
1140 BROADWAY, NEW YORK, N.Y.

BUY FROM YOUR JOBBER

EXTRA HIGH GRADE WOOD FACES

MADE by special machinery. Finest white quartered oak and High Speed Ball Bearing mechanism insures perfect construction. Specially designed grooving saw cuts all grooves exact size. Eaglesfield Wood Faces are stronger than others—the cross pieces are 1/16 inch deeper than those used in other faces.

Single orders or carloads promptly at fair prices. Write today.

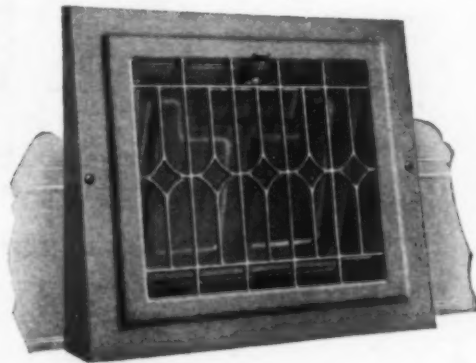


EAGLESFIELD VENTILATOR CO.

918 DORMAN STREET

INDIANAPOLIS, IND.

NEW!



INDEPENDENT REGISTERS!

Greater than usual open area
combined with attractive design

May we send you full information?

INDEPENDENT REGISTER & MFG. CO.

3741 E. 93rd Street, Cleveland, Ohio

150 Colvin Street New York State Branch Rochester, N. Y.

Founded 1880

Published to Promote
Better
Warm Air Heating
and
Sheet Metal Work

American Artisan

and Hardware Record

Sheet Metal Work-Warm Air Heating

Yearly Subscription
Price:
United States.....\$2.00
Canada.....\$3.00
Foreign.....\$4.00

Published EVERY SATURDAY at 620 South Michigan Avenue, Chicago

ADVERTISING AND EDITORIAL STAFF

Etta Cohn
J. F. Johnson

Franklin Butler
Chas. E. Kennedy

G. J. Duerr
Frank McElwain

Eastern Representatives: M. M. Dwinell, J. S. Lovingham, 156 Fifth Avenue, New York City

Vol. 94, No. 6

CHICAGO, AUGUST 6, 1927

\$2.00 Per Year

Table of Contents

	Page		Page
Sheet Metal Department.....	13 to 23	Notes and Queries.....	23
New Sales Room of J. Kefferly Triples Metal Ceiling Business in Five Months.....	13	Random Notes and Sketches, by Sidney Arnold.....	24
What Is the Duration of Prosperity and How Determined? by Franklin Hobbs.....	15	The Editor's Conning Tower.....	25
Illustrating Construction of Pattern for Tee on a Taper Which Is Off Center, by O. W. Kothe, Principal St. Louis Technical Institute.....	18	Loyalty to the Business and How to Get It.....	25
Milcor Moves Into New Chicago Home October First.....	20	The Importance of Building a Good Reputation.....	25
Grand Rapids Heating and Sheet Metal Men Hold Annual Outing at Camp Lake.....	21	Definite Relation Exists Between Prosperity and Selling.....	25
First Class Radiator Repair Work Builds Confidence, by P. H. Nichols, Reliable Auto Radiator Specialty Co.....	22	Warm Air Heating and Ventilating Department.....	26 to 26
		Measurement of Heat, by L. W. Millis.....	26
		Sheet Metal Charlie Sells Six Furnaces as Result of Window Display.....	27
		Points to Necessity of Following Advertising Leads to the End.....	29
		Retail Hardware Doings.....	30
		Markets.....	32

Dressing That Window

Sheet metal and warm air heating contractors have labored entirely too much under the impression that the products and services with which they work do not lend themselves readily to display. This is a fallacy that has kept the sheet metal and warm air heating industries from taking their rightful places in the scheme of service rendering industry today. One of the objects which AMERICAN ARTISAN hopes to accomplish is to show its readers that sheet metal and warm air heating does lend itself easily to many kinds of displays, and that progressive contractors in both industries are doing it every day.

THE METEOR FURNACE



The "horseshoe" type one-piece radiator that eliminates gas leakage.



The one-piece, dust-proof ash pit with the triangular anti-clinker grates.



The large combustion chamber—ample in size for heavy and efficient firing and for the complete combustion of the coal gases.



The heavy corrugated fire-pot with its gas-tight, deep cup joints prevents coal gas, dust and soot from entering the rooms above.



Illustration shows high cast iron front and solid one-piece base plate, features that simplify the erection.

IN the Thatcher Meteor Furnace, dealers have a furnace that will appeal to the customer who desires the most heating efficiency for moderate operating and installation costs.

Point out how the specially designed radiator and large combustion chamber extract the full heat value from every pound of coal consumed; the large fire pot that means less frequent firing periods.

Show him how the gas-tight construction prevents gas and dust from entering the home with the warmed air. Point out why the construction of the base plate and the high cast iron front means moderate installation costs.

Write for trade information and descriptive literature about Thatcher Meteor Furnace and other Thatcher products.

The Thatcher Company

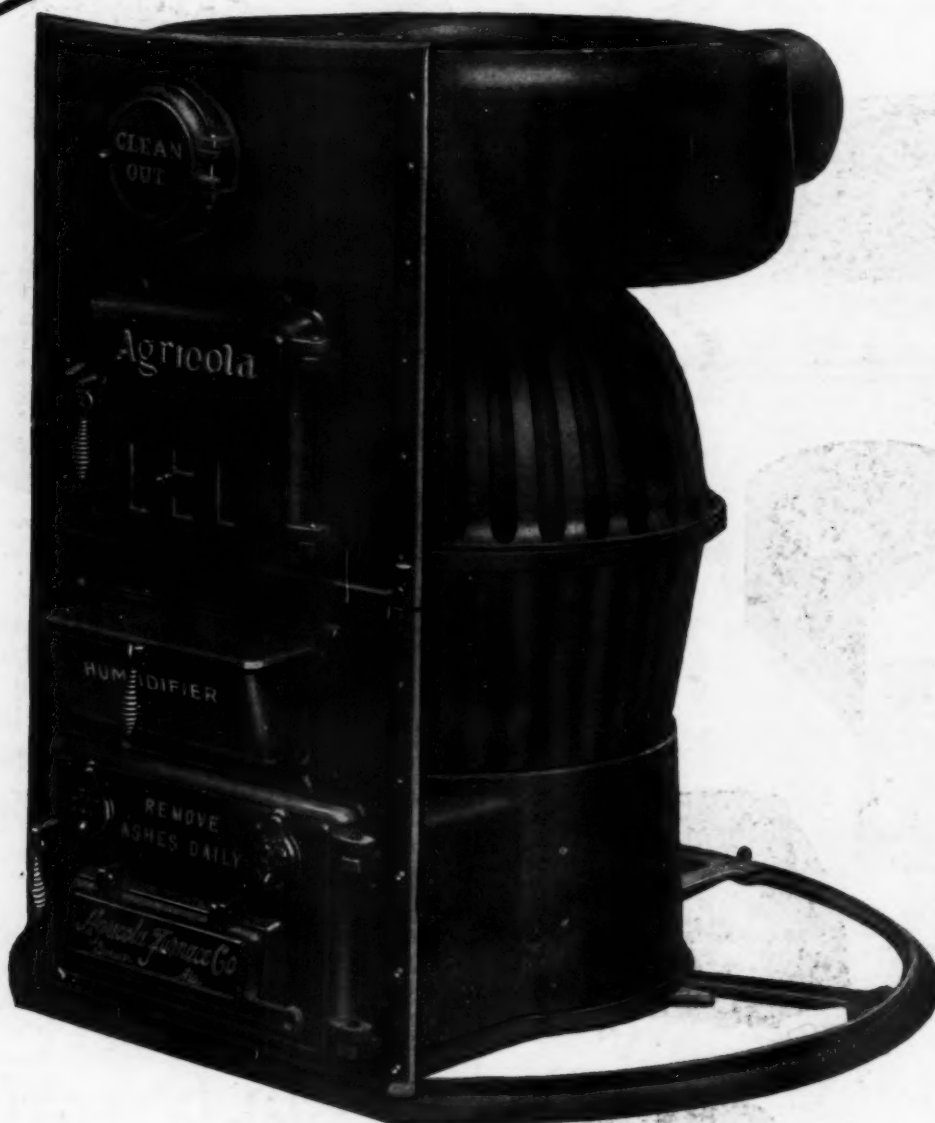
Since 1850

NEW YORK NEWARK, N. J. CHICAGO
21 West 44th St. 39-41 St. Francis St. 341 N. Clark St.

THATCHER

BOILERS-FURNACES-RANGES

Extra heavy construction A Quality Furnace



Agricola Furnaces

THE furnace that invites comparison. Today's greatest value—quality considered.

Agricola Furnaces are manufactured by the fastest growing and one of the largest furnace plants in America.

Write today for further information and prices

Agricola Furnace Company
Gadsden, Alabama

When writing mention AMERICAN ARTISAN—Thank you!



American Artisan and Hardware Record



Vol. 94

CHICAGO, AUGUST 6, 1927

No. 6



Window Display of the J. Kefferly Sheet Metal Works, 4322 Armitage Avenue, Chicago. This is the New Home of the Kefferly Sheet Metal Works. These Display Window Are Rapidly Paying for Themselves

New Sales Room of J. Kefferly Triples Metal Ceiling Business in Five Months

Says He Wishes He Had Made the Move Ten Years Ago

SHEET metal contractors and warm air furnace installers of the progressive type are very rapidly awakening to the dawning of the new era in merchandising in their industries. They have come to the conclusion, not without many mental reservations perhaps, that if other branches of industry can merchandise their products and services by the use of appropriate window displays and studied advertising, then why cannot the sheet metal

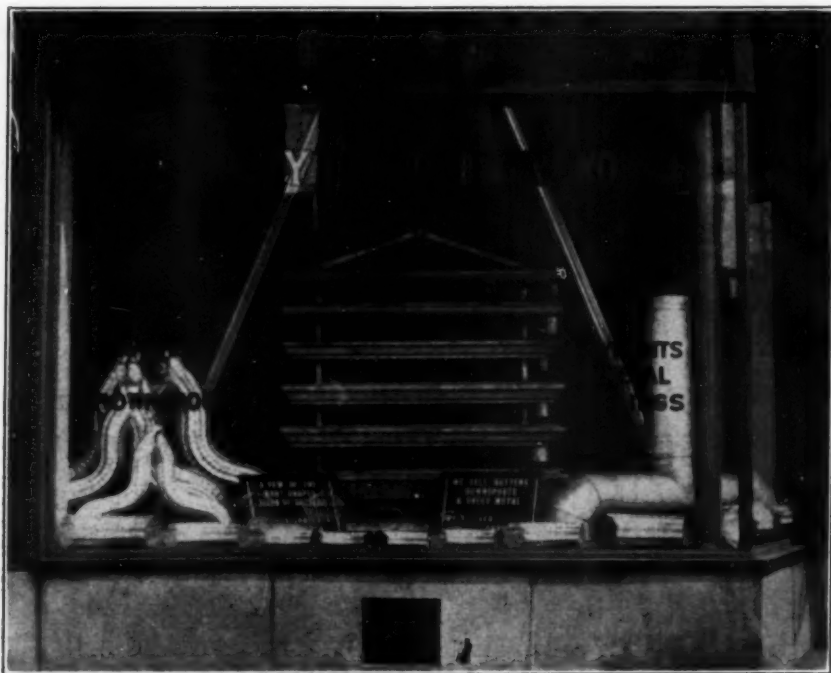
contractor and warm air heating engineer do likewise?

Of course it means for many of these men a complete right-about-face in their established practices, practices which in many instances have netted the owners of the shops a good profit through periods of years. But never-the-less they are willing to step out and invest a considerable sum of money to remodel their shops and sales rooms.

In the accompanying illustration

the new shop and salesroom of the J. Kefferly Sheet Metal Works, 4322 Armitage Avenue, Chicago. Mr. Kefferly is one of the old school of sheet metal contractors. He learned the business from his father, who was a sheet metal contractor before him.

But Mr. Kefferly has progressed. He has kept pace with the changing times in the sheet metal and warm air heating industry. He goes out after business, and as a consequence



Sheet Metal Display of the J. Kefferly Sheet Metal Works. This Window Display is Shown to the Left on the Illustration Showing the Entire Window

his shop is busy during times when other, less progressive men are complaining that there is no business to be had.

Mr. Kefferly's shop was formerly located on Tripp Avenue, where he held forth for over sixteen years, but the desire for greater progress and more business and a longing to place his business on a par with that of other merchants led to the erection of a new building in which provision was made for the adequate display of furnaces and sheet metal products. And the returns that have resulted fully justified the investment required, according to Mr. Kefferly.

In the large illustration the sheet metal window is shown on the left. The warm air furnace display is on the right. The office and salesroom is located directly back of the warm air heating display window, while the sheet metal shop in which eight men are employed continuously is entered through the doorway adjacent to the sheet metal window display on the left.

One of the placards in the window, which are attractive in themselves, calls the attention of the passersby to the fact that "We Sell Gutters, Downspouts and Sheet Metal." The other placard in the

same window says, "A Few of the Many Samples and Sizes of Gutters We Carry." This window is kept clean and is changed at regular intervals.

The furnace window is likewise kept free from dust and dirt and is changed regularly. The placards that are shown pasted to the window are attached by means of vari-

colored streamers to the several parts of the furnace. Each placard tells the public some desirable feature of the furnace. A changing picture machine is also located in this window and attracts the attention of the public to warm air heating.

Of Course, as other furnace installers have found, this dressing the place up, Mr. Kefferly has found, represents no small investment, but he has also learned to his own satisfaction that such an investment pays good dividends.

The Kefferly Sheet Metal Works has been located in its new home for a period of five months. When asked whether this change had netted him greater, Mr. Kefferly said: "It is a move I wish we had made ten years ago. We have tripled our metal ceiling business by reason of the fact that we have our office here trimmed with this material. The installation of this metal ceiling is a perpetual demonstration of the work we do and it is constantly bringing us inquiries. We expect to change these windows about every 30 days.

Mr. Kefferly is a member of the Cook County Sheet Metal Club and an associate member of the National Warm Air Heating Association.



Warm Air Heating Display of the J. Kefferly Sheet Metal Works. This Window is Shown on the Right in the Illustration on the Preceding Page

What Is the Duration of Prosperity and How Determined?*

Can Story Told by Statistics Aid Business Man in Eliminating Depressions?

By FRANKLIN HOBBS

AFTER a period of prosperity is well established, the question which arises and demands attention is how long this period of prosperity is likely to continue. Once we know the probable length of the prosperous period, and the probable time required to go from recession to depression, we are in a position to make business calculations which will insure against inventory and other losses and will materially assist in determining the distribution of dividends.

As recent periods of depression in this country have been of relatively short duration, and as they are constantly growing shorter, it should require no more than average business judgment, coupled with the knowledge now available to our business men, so to safeguard our enterprises as to ride serenely over periods of recession and carry safely through the small eddies or whirlpools of depression into the placid waters of improvement which are never far away.

Depressed Periods Are Short

Running back over the last thirty-five years, we find no period of depression lasting two years and few which have lasted eighteen months. In making business calculations, it is only necessary so to arrange our output and distribution, and so to order our inventories, as to take care of an occasional depression lasting little more than a year and arriving not oftener than once in four years. Three years out of four for one hundred years have been reasonably good business years. Two years out of every four have been really prosperous, the third year being a time of improving or

declining business. Only the fourth year can be termed a time of business depression, and it would seem that with average or better than average operations for three consecutive years, good business management should be able to trim the ship so that it will carry safely through one year of bad weather.

Keeping a Business Above Average

Quite naturally, all businesses are not affected in the same manner or to the same extent by changes in general business conditions. The lengths of the periods of prosperity and adversity above mentioned relate to the average performance of all business combined. The really well-informed financier or business man should be able to hold the affairs of his concern above the average at all times, which would mean that his periods of depression should last but a few months out of each four years.

Business depression might be likened to rainfall. In most parts of the country, rain falls but a few hours out of each month and but a few days out of each year. At such times, we wear a raincoat, carry an umbrella, or stay indoors. Similarly business can be protected against these short periods of depression. Such protection, when exercised by the majority of business men, will serve to curtail, in a still greater degree, the depressed periods—and average or better than average business operations may be enjoyed for considerably more than three years out of each four-year period.

Depressions Were Longer a Century Ago

Late in 1815, this country experienced a period of depression which lasted until early in 1821, a total of almost six years. In September, 1839, a business depression was

ushered in which lasted until June, 1843, or nearly four years. The so-called panic of '73 brought about a business depression which lasted from the end of September, 1873, to the end of May, 1878, or almost five years.

This was a very small country in 1873, and the total volume of business was so small as to make it difficult to draw a comparison with the present day. The total manufacturing output of the United States in 1873 was considerably under \$5,000,000,000. Now this output is \$60,000,000,000, or twelve times as great in value. There were actually more manufacturing establishments in the country then than there are now, for the cottage factory was on almost every farm and there were dozens of very small factories in every hamlet. There were fully 250,000 factories in the United States in 1873, and there are now less than 200,000. The number of workers employed in manufacturing was not far from 2,000,000 persons in 1873. The present factory employment is about 9,000,000. The population of the country in 1873 was only one-third of what it is today and our merchandise exports were then valued at about \$500,000,000 compared with something over \$4,000,000,000 as the average for the last five years.

How Depressions Have Been Growing Shorter

This country suffered acutely from the period of depression following the silver legislation and establishment of the gold standard in 1873. The suffering was greater because the commerce of the United States was in its early childhood. Since that time, business has grown in volume as the country has grown in population, and the business volume has multiplied as living stand-

*Reprinted from the August Business Bulletin of La Salle Extension University. Mr. Hobbs is Business Analyst of La Salle Extension University.

ards have risen, until today the United States is a commercial giant in the world.

When a man assumes a great position, new responsibilities fall upon his shoulders and other people look to him for example and guidance. Having become commercially great, it devolves upon this country to set an example to the world in the handling of commerce. That we are doing our duty in that regard is indicated by the constant shortening of our periods of depression. Not since 1878 have we had a period of business depression lasting two years. The recession of 1883 reached real depression in 1884 and lasted through October, 1885. Again, in 1893, it will be remembered that the month of July ushered in a panic of far-reaching and disastrous consequences which carried through to June, 1895. There was improvement and recession and again depression in the latter half of 1896 and the early months of 1897, with no period of prosperity intervening between these two periods of depression. The first depressed period was industrial, but the second was political and was soon dissipated after the reaffirmation of the principle of the gold standard of money by the people.

Four Periods of Short Duration

No less than four periods of depression have visited us since 1897, but only two of them have lasted a full year. That of 1904 was of a few months' duration; the one which reached us in October, 1907, lasted through 1908; the one which arrived with the new year of 1911 did not last until Christmas; another arrived with the new year of 1914 and finished its course before the arrival of 1915.

A real depression struck us in the fall of 1920 and carried clear through 1921; and the last one arrived early in 1924 and completed its course before the middle of that year.

Running over these more recent periods of depression, it is easy to find plausible explanation of each of them. Knowing the causes, it becomes our business, and our privi-

lege, to eliminate them so that the same causes can never again bring on a period of business demoralization.

How Overconfidence Brought Trouble

Certain it is that the depression of 1920 and 1921 was man-made. The rapid price advances which occurred after November, 1919, resulted from rabid speculation in commodities—buying and holding to sell at a higher price.

It was apparent to students of conditions shortly after the middle of November, 1919, that a general price decline was in the offing, and, in the late months of 1920, after the great price break had occurred and had caused losses of untold millions in merchandise inventories and to farmers, it was apparent that a period of unemployment was on the way and due to arrive early in 1921.

The business depression of 1920 and 1921 could have been materially modified by the application of knowledge then in the hands of business students, statisticians, analysts, and economists. Business men now know this and the result has been a general increase in the use of statistical information in controlling business operations. Business men who were told, early in 1920, to look out for the great price break, and then failed to take heed, are now students of price trends and are not so likely again to be caught with excessive inventories when the break comes or to be short of needed materials when prices turn upward.

Experience Is a Good Teacher

It is unfortunate that so few of us are willing to profit by the experience of others, but this has always been true. The farmers who were caught in the great price drop of 1920 and the manufacturers who were caught with heavy inventories when demand slumped in 1921—these men are not going to be easy victims of a repetition of those events. They are wise and, with both feet firmly on the ground, they are watching conditions and are making use of basic statistical information which tells them the trend of prices and of stocks of goods in

their lines in relation to consumption. It is only the man who has started in business since 1921 who believes that prosperity is now established as a permanent institution and that business can never again experience a period of depression.

The brief depression of 1924 left us little opportunity to determine causes. It threatened to come in the late months of 1923; the worst was over before July, 1924, and prosperity was again rampant at Christmas time. It was really a small cloud in an otherwise clear sky and not a storm at all. It did rain a little and a few got wet, but business in general moved forward steadily, if slowly, and, with the knowledge gained in 1921, business was shoved up into a prosperous position by Christmas, 1924, and has remained there until now.

When Will Business Drop?

And now comes the important matter of determining when we may expect business depression to be with us again.

The answer is that we may expect it just as soon as we bring it. It will not come of its own accord, but must be brought on by business men.

The man who does not now recognize that business has receded slightly from last year is the man who is helping to bring on business depression. Those men who know that business is not quite so active as it was last year, and who are prepared to have it even a little less active next year, are the men who are helping to extend this era of prosperity—and it could last at least two years more. We say it could, because twice in our commercial history an era of prosperity has lasted five years, and it can happen again. Good business judgment should tell us, however, that it may not, and that a slight recession in business this year and next, and the next, need not mean business demoralization or even business depression. Occasional recession is necessary in order to allow us to take a full breath. Factories cannot operate 365 days in the year nor can a

freight car ride the rails every day in the calendar year without a let up at some time or other.

Recession in Business Is Not Necessarily Depression

The slight easing off in the business operations of 1927 will, when the year's business operations are graphed, be ruled with the light diagonal line which means recession. Total operations for the first half of 1927 are well over any year of record, except 1926, and the story of the latter half of the year promises to parallel the first half, so that when the final story of the business of 1927 will have been written, the forecast which appeared in the January number of this Bulletin may prove to have been fairly accurate. At any rate, in checking the half-year figures now available to us against our January forecast, we find that our estimate that 1927 business would be one-half of the combined totals of 1925 and 1926 shows a variation of less than one per cent. Restated, the first half of 1927 exceeded the first half of 1925 and fell below the first half of 1926. Present activities indicate the same trend for the remainder of the year—gains over 1925 and declines from 1926, with the year's totals bearing the same relation to the two previous years that the half-year totals, now before us, bear to the first half of the two previous years.

Authorities Say That the Business Cycle Is Still Here

Thus, the dip of the business cycle is now in evidence. The cycle is not disappearing; it continues to function, but its rises and falls are being modified through the strengthening of our business and financial structure, and through the greater interest being shown by business men in the economic condition of the country. Our periods of prosperity are already longer and our periods of depression are shorter than those of any other great nation. Thus are we justifying our leadership in the world of commerce and finance. We are demonstrating that we can learn the how of things in industry.

Sheet Metal Slogan Signs Now Available for Use by Contractors

This illustration shows the Metal Slogan Sign adopted by the National Association Sheet Metal Contractors at the Dallas Convention.

The sign is made of No. 26 gauge Sheet Steel—size 20 by 28 inches.

It is painted in four colors, which makes it very attractive. The sign is intended to be placed on the outside of buildings on which the con-

and 10c for each additional Sign when ordered at the same time.

Your requests for the sign will be taken care of by

W. C. MARKLE, *Secretary*,
Pittsburgh, Pa.

Roy Solie Buys Half Interest in Shawano Sheet Metal Works

Roy Solie, of Minneapolis, Minnesota, has purchased a half interest in the Shawano Sheet Metal



Sheet Metal Slogan Signs Now Available for Distribution at the Office of the National Secretary

tractor is doing sheet metal work. It is made in three different subjects—"SHEET METAL by"—"SHEET METAL and ROOFING by"—"WARM AIR HEATING by."

Bottom space of the sign is for the contractor's name and address, which may be painted in by the contractor or can be embossed by the manufacturer.

This sign is intended for members of the National Association in good standing only, and can be purchased only through the Secretary of the National Association at the following prices:

Signs, without Contractor's Name and Address, at \$1.50 each in any quantity.

For embossing Contractor's Name and Address, \$15.00, for making the die and imprinting the first Sign,

Works, Shawano, Wisconsin, according to a statement by John Zingsheim, proprietor of the Shawano Sheet Metal Works.

Mr. Solie is a practical mechanic, specializing in warm air heating and ventilating work. His entering the Shawano Sheet Metal Works should prove mutually beneficial

Alvin Reinsdorf to Succeed His Father in the Sheet Metal Business

The name of H. Reinsdorf & Son, sheet metal contractors at 126 Third Street, Kenosha, Wisconsin, has been changed to Reinsdorf's Sheet Metal Works. Mr. Alvin Reinsdorf will in a very short time succeed his father in the business.

Mr. Reinsdorf will be glad to receive catalogs and prices from manufacturers of sheet metal products.

Illustrating Construction of Pattern for Tee on a Taper Which Is Off Center

Most Satisfactory Method Is Parabola Line Method Which Is Easily Learned

By O. W. KOTHE Principal St. Louis Technical Institute

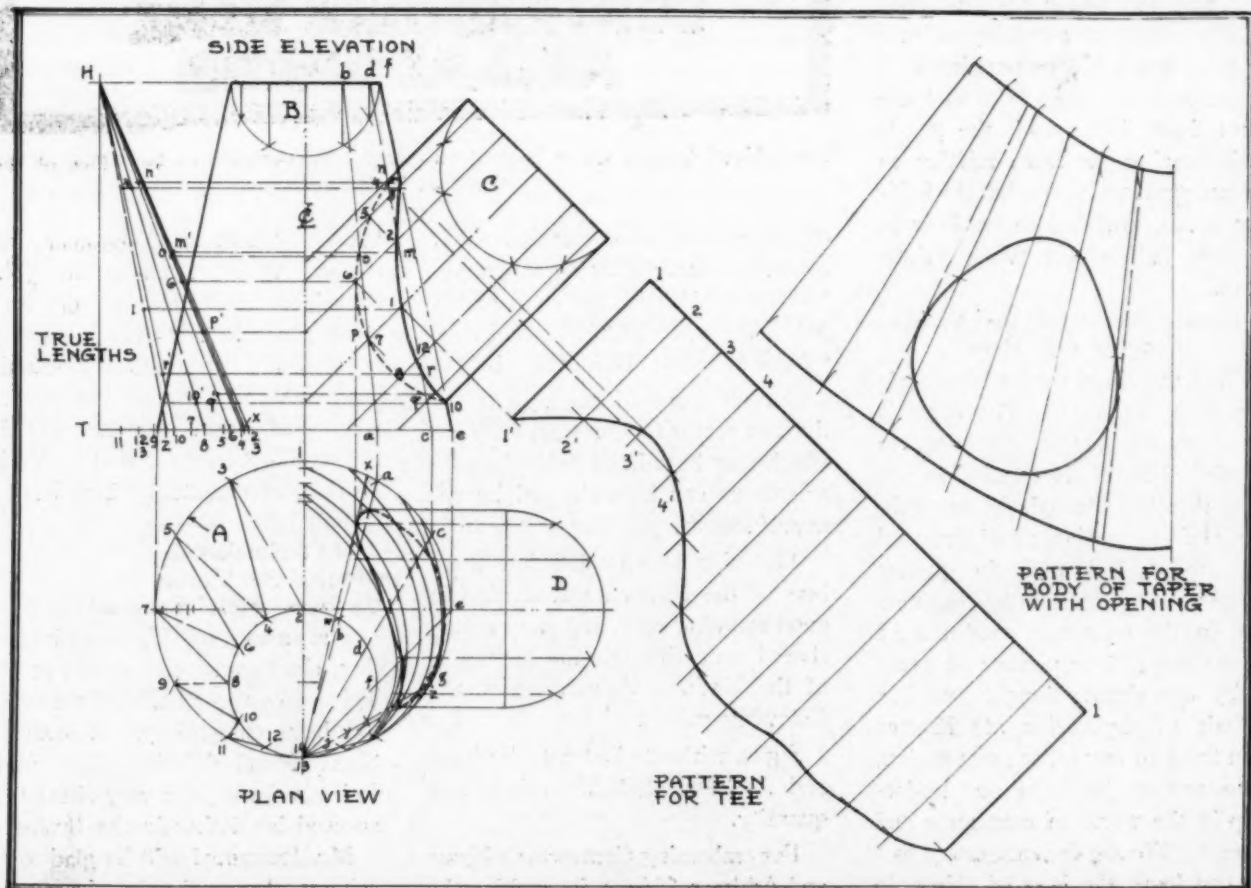
PIPE men often meet with piping systems that must be flat or level on the bottom, and the tees must run in on the side or some other position, according to the desire of the engineer.

In that case some trouble is often met with in developing the patterns and especially if more of them are required. If only one fitting is needed, it is a simple matter to chop it out by the whittling process, but where more are required and some degree of accuracy is desired, then the best way to get at it is by rules of geometry. Owing to the changing diameters of the taper and the angle of the tee, it is difficult to arrive at the points of penetration between the tee and the taper.

The most satisfactory way is to use a parabola line method which, when practiced at home for a number of problems, can be applied in the shop fairly rapidly. But it is not to be expected for a person who never does any home drawing to be able to lay out a problem of this kind in the shop on the spur of the moment. This problem is worked on the theory that the lines of the tee passing over those of the taper produce parabola lines—that is, each intersection establishes its own points and therefore makes them odd shaped lines shown in plan. Then when the tee is placed in a plan view and lines are run in to intersect the parabolas, a proper intersection is made that gives a per-

fect miter line.

So, first draw the elevation of taper and place the angle for tee. Next describe the outline for plan with a circle A and divide in any number of equal parts. At the same time describe section B and C of elevation and get their aid draw lines in the manner shown. Now where the lines from section C cross those passing over the surface of taper, as a-b, c-d and e-f, take each point and drop down to similar line in plan as indicated on line 13-c in plan for line e-f of elevation. When this is done for each of the lines indicated the intersections are made for drawing these curved lines. Those that intersect the vertical center line they are carried to



Patterns for Tee On a Taper Off Center

the outline of elevation and then dropped into plan, after which they are described again to the vertical center line of 1-2 of plan, which give points to finish the parabolas as these should be finished off when the job is completed.

Now, by describing section D with all its points similar to C and from each of these points carry lines into plan until they intersect parabola lines of similar number. This will give you the points for sketching the outline for opening in the plan view. By carrying these points up into elevation each point individually we locate points drawn from C of elevation as 1-2-3-4-5, etc., as a miter line of elevation. Observe our plan view is in a foreshortened position, but our elevation is in its true position, and therefore we can develop the pattern direct from elevation.

So by drawing a line at right angles to elevation tee as 1-1 and on it measure off the circumference for the pipe and draw stretchout lines, the miter line is then projected just the same as for all such developments. This gives points 1'-2'-3'-4', etc., and enables tracing a free hand line through the several intersections.

In developing the pattern for the taper we must use triangulation, since the fitting is flat on one side. For this we have the left hand side of plan divided up into triangles, for which we use in obtaining the true lengths shown in diagram. This procedure will be followed readily by the student.

The pattern then is developed much the same as all objects of this kind, by triangulation, and when the outline is established the opening can also be filled in if desired. This is done by taking the intersections of the miter line of elevation crosses the lines a-b, c-d and e-f, as in points m-n-o-p-q-r, etc., which are carried over into the diagram of true lengths until they intersect lines of similar number, as shown in positions 1-3-m'-n', etc., on the sketch which accompanies this article.

With these lines we can then mark off the lines in pattern, thus

cutting off those lines as shown. Edges for assembling must be allowed extra. This should be watched carefully to avoid error in the actual cutting.

Milcor Develops New Coping Cutter Which May Be Rented or Purchased

Builders and contractors will be pleased to hear of the new machine developed by the Milwaukee Corrugating Company for the purpose of cutting accurate, tight-fitting corners on Bull Nose Expansion Corner Bead No. 10.

This machine is small and compact, says the manufacturer. The base is 6 by 3 inches; it is 5½ inches in height, and is operated by a hand lever 12 inches long. The total weight is only 15 pounds. It may be bolted to a bench or fastened in a vise.

The machine is simple and easy to operate. The expanded metal wings on a piece of Bull Nose Corner Bead are clipped for a few inches, parallel to, and close up to the bead. The bull nose is then inserted with bead down—wings up—into a slot in the machine which is designed to fit the bull nose exactly. The bead is inserted as far as it will go; then a pull of the lever, and a perfectly fitting cope will be cut. This machine greatly simplifies the work, saves time and makes perfect corners with less effort than is possible by any other method.

With the increasing vogue of "plaster-reveal" windows and open archways, and the growing demand for metal trim instead of wood, Expansion Metal Corner Bead is becoming very popular. For this reason the development of the Coping Machine to insure true, tight-fitting corner joints, meets an urgent need. The makers of this machine are to be commended on their efficient service to their customers.

Another interesting fact to be noted, is that the Coping Cutter may be rented from the Milwaukee Cor-



The Cutter

rugating Company. It may also be purchased outright, but the rental feature will enable all builders to use the machine, even on small jobs, at reasonable cost.

Details of the rental and purchase terms may be secured by writing to Milwaukee Corrugating Company, Milwaukee, Wisconsin. Write for details.



Showing How Cutter Is Used

Milcor Will Move Chicago Warehouse Into New Quarters October 1

Building Has All Modern Improvements and Greatly Increased Space

ON or about October 1, the Milwaukee Corrugating Company will move its Chicago quarters from the building it has occupied for the past two and a half years to a new and larger location in a modern, fireproof structure, at the southeast corner of Western Avenue and West 43d Street, Chicago. During the two and a half years that the Milwaukee Corrugating Company has maintained a complete warehouse and branch office in Chicago, its business has developed to such an extent that more space was imperative.

The new Chicago home of Milcor Products is a modern three-story and basement structure of reinforced concrete, equipped with automatic sprinkler system. The land

fronts 114 feet on Western Avenue and extends 449 feet on West 43d Street, to the right-of-way of the Chicago Junction railway, thus providing a land area of 60,260 square feet. The building occupies 90 by 200 feet of this land and contains 75,000 square feet of floor area. The exterior of the building is face brick and terra cotta trim on all four sides.

While most of the space will be devoted to the warehousing of the complete line of Milcor products, including metal lath, roofing, metal ceilings, ventilators, stove pipe, furnace pipe and fittings, adequate space is also provided for very pleasant, modern offices for the Chicago division of the Milwaukee Corrugating Company's sales department.

Shipping facilities via truck and railway are ideal, a long grade switch track from the Chicago Junction railway and the Pennsylvania lines serving this property.

This increased space will provide the Milwaukee Corrugating Company with ample warehousing facilities for their present requirements and there is sufficient vacant land in the above mentioned purchase to provide for future expansion.

With this additional Chicago space added to the plants of the Milwaukee Corrugating Company in Milwaukee, Kansas City, Missouri, and LaCrosse, Wisconsin, the total floor space devoted to manufacturing and warehousing of the Milcor products amounts to more than sixteen acres.



New Home of the Milwaukee Corrugating Company Branch, Western Avenue and 43rd Street, Chicago

Grand Rapids Heating and Sheet Metal Men Hold Annual Outing at Camp Lake

Preparations All Made for State Outing at St. Clair Flats, August 18 and 19

WE KNEW we had found Camp Lake, the place where the Grand Rapids Sheet Metal and Heating Contractors' Association were picnicking Saturday, July 3rd, because floating over the breezes we could hear the voice of "Brig" Young (he doesn't like to be called Wayne) shouting, "When do we eat?" seconded by Harry Rhodes' "Yes, when *do* we eat?"

Frank Ederle gave such a tempting picture of the State Outing to be held at St. Clair Flats (no relation to McFadden's Flats) August 18th and 19th that everybody wanted to go. As a result, Bill Busch, president of the Detroit bunch, who have charge of the outing, no doubt is being flooded with reservation cards.

Someone asked Frank, "Is St.

sure to do so at once, to Bill Busch, 639 East Fort Street, Detroit, because this year's Outing is going to be by far the best yet, and if you attended any of the Michigan State Outings you know what that means.

The ladies were again favored with boxes of candy, the kiddies with all day suckers, while the men, of course, had cigars and cigarettes.

Then came the games. The Grand Rapids folks evidently believe in preparedness, but why train the "enemy"? The first game went over big. Each lady was given three opportunities to knock the head off a dummy figure with a rolling pin thrown from a distance of about 20 to 25 feet. To make it more realistic, as the lady took her turn, a card was placed on the dummy's neck with her husband's name. Mrs. Ike Lammers was awarded a dandy pocketbook as the best husband-socket, for she sure did knock Ike's head off.

Mrs. Cliff Hereenden said there were 255 peanuts in the bag. There were 257, so she became the proud owner of a toilet case. Here's hoping it will come in mighty handy at the State Outing.

Mr. and Mrs. Ed Schaafsma were each awarded \$2.50 gold pieces because of their splendid team work



1. Looks like a Suffragettes Convention but it is only ladies trying on the matchboxes. 2. Tony Howe and Brig Young "taking in" the Horseshoe Game. 3. Wonder why Mrs. Tony Howe is hiding her face? 4. A lineup of the Fair Sex

And eat we did—chicken with biscuit and all the fixings, mashed potatoes, vegetables, coffee, ice cream, served in generous helpings, and, best of all, it was "on" the association.

F. D. Hodges led the singing at the table, or at least tried to until some wise person suggested that he sing the song made famous by the Michigan State Association, "Moonlight and Roses," which he did wonderfully well.

Dad Ederle was called upon for one of his famous German songs, but for some reason or other, after singing one line, he refused to go ahead. Why, only he knows, as the applause was surely long enough and loud enough to please anyone.

Clair Flats on the Canadian side?" "No," said Frank, "but that doesn't make any difference." So if you haven't sent your reservation, be



1. Frank Ederle looks cross but he isn't. He's just trying to look like a severe judge. 2. Mrs. A. W. Howe of Cleveland, Mrs. W. Y. Young and Mrs. John Behler. 3. Mrs. Ike Lammers and "Ike"—Mrs. Lammers has just been adjudged Champion "Husband-Socket"

in the next game. This \$5 ought to come in mighty handy for spending money at the State Outing.

John Wierenga went home richer by a pair of tinnerns' snips. Whether John was a better blower than the rest of the fellows, it was pretty hard telling. Possibly, his balloon was biggest and longest lived, because he was the best runner.

Ed Schaafsma and Henry Delney threw the indoor ball farthest. Of course, the fellows who were first on the list had a better chance because every other thrower, although he aimed for a certain tree on the beach, landed the ball into the lake, and every time the ball got wet it was a little bit harder to handle. Someone said John Behler was the real winner, but as John has a whole warehouse full of tinnerns' supplies, he wouldn't take the prize and asked that it be given to the next fellow.

There were plenty of other games—horseshoe throwing (barnyard golf), etc.—but the ball game was an institution in itself. The score, after goodness knows how many innings, was 9 to 5.

The players were evenly divided and quite accommodating. It was a regular "love your enemy as yourself" game. It seemed as though the umpire fielded while he kept score, and not a word of protest.

"Dad" Ederle had been invited to umpire, but remembering the games of previous years, he refused. So one of his grandsons, Chuck Ederle, took the job.

The winning team was to have been awarded with smokes, but Vic Heather, the man in charge of the smokes, couldn't be found. They said he had decided to go in swimming. Whether or not he took the cigars with him is a question.

It was quite a pleasant surprise to find Mr. and Mrs. A. W. Howe of Cleveland among the first on the job. But knowing what convention goes "Tony" and the Mrs. are, we should not have been surprised at all, but just naturally should have expected to find them there.

Do not forget another good time coming at the Michigan Outing, August 18th and 19th, St. Clair

Flats. Whether or not you live in Michigan, just so you are in any way affiliated with the sheet metal, roofing or warm air heating trades,

you will be mighty welcome. Frank Ederle says so, and you can take his word for anything and everything connected with Michigan.

First Class Radiator Repair Work Builds Confidence

Cheap Competition Is Successfully Met by Policy of Fair Dealing and Quality Workmanship

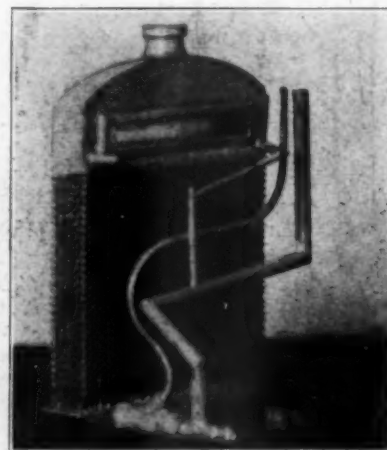
By P. H. NICHOLS, Reliable Auto Radiator Specialty Co.

WE endeavor to classify our work into three divisions; namely, 1—radiator repairing from used car dealers; 2—radiator repairing from garages; 3—first class radiator repairing.

Used Car Dealer Radiator Repairing

This work is largely that type done in other shops as cheaply as possible; in fact, this work is done so that the radiator will just hold water. On this kind of business some of the small shops have made

overheated motor. Such cases give us our big opportunity to show the owner of the car that he makes a



Showing Radiator Partially Dismantled

In this article on automobile radiator repair work Mr. Nichols has dropped some valuable pointers on the benefits of associated effort and on the policy of demanding a fair price for your work, while at the same time building a reputation for doing only the best possible work on every job that comes into your shop. The automobile radiator repair business is fraught with as many of the price cutting evils as the sheet metal contracting business. In spite of this, however, Mr. Nichols has found a way to make both friends and profits and the sheet metal men can do likewise by employing some of his tactics.—The Editor.

a straight price; that is, they will repair, if at all possible, say any Ford radiator for \$2.50.

Examining some of these jobs, we found as many as twenty-two tubes plugged out of the total of ninety-six that are in a Ford radiator. This practice results in an

mistake in turning this radiator repair work over to other than the conscientious worker. We prove to him the fallacy of placing faith in the straight price repair man. In this way we are able to make many sales of new radiators. We also make friends with the car owner.

We do not make a practice of catering to this class of trade. Occasionally we do repair some of these used car radiators, but only to give the apprentice an opportunity to gain some experience. We do not do the work on a flat rate basis, nor do we plug more than six tubes if this method is insisted upon by the used car dealer. By taking this stand, we have gained the confidence of the used car dealer. He in turn, when selling a used car, stresses the point about the job of radiator repairing and immediately he is able to com-

mand a higher price for the car than he would have had he not had this additional selling point.

Very often we call the used car dealer to our testing tank, showing him the conditions of some special radiator and the work required to put it into good condition. Having done this, we very seldom experience trouble on account of the price charged for the work.

There is a used car dealers' association in this city. This organization guarantees all used cars sold by members of the association to be exactly as represented. If found not to be as represented after thirty days' trial, the buyer has the privilege of returning the car and selecting another, with full credit given for the one found not to be satisfactory.

In order to live up to these terms, the used car dealers must be pretty sure of their products and right here is where the reliable radiator repair man comes in.

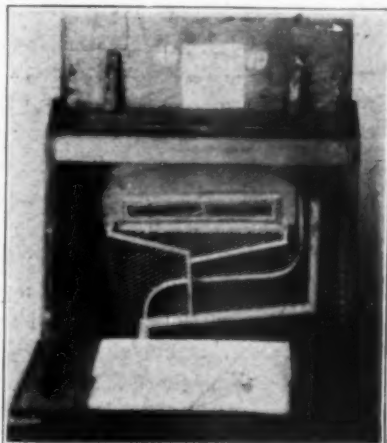
Garage Radiator Repairing

The garage radiator repair business is not so easily obtained, but it can be had by first gaining the confidence of the head of the repair department of the new car dealer. We make application to the head of the firm, invite him to our place of business and show him our equipment and specialties. We then submit a standard price on radiator repairing, recoring or rebuilding. We also quote prices on new radiators. On new radiators, the new car dealer adds his small margin of profit to the price which he quotes the customer. We guarantee all of our work and by so doing we gain a friend of the new car dealer. He in turn gives us all of his work and also will say a good word for us when some one asks him for a reliable radiator repair shop.

Many jobs have come to us through such channels without our having to submit quotations. We have brought about this result by always being fair to everyone, including ourselves. Our reputation for fair dealing has spread for miles around.

Here's how it works. If a car

owner enters a garage, and it is found that he needs nothing more than radiator attention, he is advised to come directly to us. Many of these calls we find are caused by over-heated motors. We then check the four causes of an over-heated motor: namely, 1—spark; 2—carbon; 3—pump; 4—dirty or clogged radiator. If the first three of these check o. k., we know it is radiator trouble. We guarantee to clean any radiator with the reliable



Radiator Mounted in Casing Ready for Work

radiator blower or no pay. If we find the water channels in the motor block clogged, we so advise the owner. For making this cleaning we charge \$6.50 to \$12.50. Any leaks that we find after the cleaning operation are repaired at an extra charge.

We do not try to underbid the price of our competitors, but rather work with them, showing them where we gain the business and put it on a sound paying basis by our practice of fair dealing.

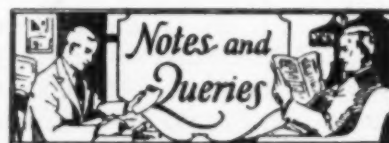
First-Class Radiator Repairing

We want to explain at the outset that we do not mean by the classification first-class here that the other two classifications do not represent good workmanship. All work that we do is done in the best manner possible.

This third classification represents car owners who have been stung by used car dealers and garage men on their radiator repairing and have come to us with the idea of getting their work done

good in the first place. They have had their fill of cheap work.

We have found radiator water channels plugged to an extreme, solder pound after pound melted into the honey comb cells up and down the radiator, hose castings soldered on edge where they should have been taken off and retined, large cracks in tanks just soldered over instead of having a piece of brass sweated over.



Hand Operated Machines for Cutting Noodles.

From Roanoke Hardware Company, Roanoke, Illinois.

Kindly advise us where we may obtain hand operated machines for cutting noodles.

Ans.—Clermont Machine Company, Incorporated, 268 Wallabout Street, Brooklyn, New York.

Monel Metal for Table Covering.

From Mueller Plumbing and Heating Company, Charles City, Iowa.

Please advise where we can obtain Monel metal to be used for table covering.

Ans.—International Nickel Company, Inc., 67 Wall Street, New York City, and Steel Sales Corporation, 129 South Jefferson Street, Chicago, Illinois.

Shields for Steam or Hot Water Radiators.

From Charles E. DeWald, 345 Beach Street, Aurora, Illinois.

Please advise me where I can obtain radiator shields for hot water or steam.

Ans.—Thomas and Armstrong, London, Ohio; Tuttle and Bailey Manufacturing Company, 1123 West 37th Street, Chicago, Illinois, and Hart and Cooley Company, Incorporated, 61 West Kinzie, Chicago, Illinois.

Porcelain or Enamel Steaming Tables.

From Holland Sheet Metal Works, McAllen, Texas.

Kindly advise us where we may obtain porcelain or enamel steaming tables with pots to go with same.

Ans.—Albert Pick and Company, 212 West Randolph Street, Chicago, Illinois.

Random Notes and Sketches

By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

This is the day of challengers. Prize fighters are challenging each other to fistic combats, aviators are challenging the elements, and now come the sturdy golfers.

Gentlemen of the driving-putting fraternity (but rapidly becoming co-educational), Les Taylor, Chicago assistant salesmanager of the International Heater Co., and Jack Stowell, furnace installer of Aurora, Illinois, do hereby challenge any two men in the warm air heating industry—be they manufacturers, jobbers, salesmen, or dealers—to a 4-ball golf game. Page Arthur Lamneck, of the W. E. Lamneck Company, and Harry Hall of the Hall-Neal Furnace Company, at once!

Any duo of golf fans wishing to accept this challenge will please communicate with Les Taylor or Jack

* * *

I had the distinct pleasure of a visit on Saturday morning of last week from Roger Eads, Cedar Lake, Indiana. Mr. Eads is entering the sheet metal and warm air heating business at Cedar Lake, together with his two sons and his brother-in-law. I surely hope that this new business prospers well and I know it will because Mr. Eads has had a great deal of experience in the two industries.

* * *

Immediately after the departure of Mr. Eads, W. R. Haines, Ames, Iowa, dropped in for a short visit. I surely enjoyed the few moments that Mr. Haines spent here, as he is thoroughly saturated with enthusiasm about his connection with the warm air heating and sheet metal industries. Mr. Haines handles the Rudy and Success furnaces in Ames, and in addition to operating a very successful business in warm air furnace installing he teaches school at the college of agriculture, which is also located at Ames. Mr. Haines is one of those

men who is thoroughly in sympathy with the idea of doing first class work and getting a good price for it.

* * *

I also received a visit from James Charles Allen, Rockford, Illinois, who sells International furnaces. Mr. Allen is always ready with a good story, as he knows that I enjoy hearing them. This time two men were sitting outside of a hotel. One of them was perspiring freely. As he mopped the perspiration from his neck and face, the other man asked: "Where's all that breeze coming from?" "Breeze," inquired the perspiring one, "I don't feel any breeze." "Well, look at that barber pole revolving across the street if you don't think there is a breeze." And the perspiring one ceased to perspire.

* * *

You know, Warren O. Cain, who manages very efficiently the hardware department of the Evansville Mercantile Association, Evansville, Wisconsin, was in Chicago not so long ago for the purpose of viewing a baseball game. Accompanying him was his small son, who is also a very ardent baseball fan. It so happens that the Cains, father and son, were fortunate to see the mighty Babe Ruth play. The game was played off in due time, and the Cains reached home in good order. After they had been home for some time, the younger Mr. Cain thinking the matter over, said to his father: "Say, dad, when I grow up and play baseball, I'm going to do as Babe Ruth does, I'm going to knock a home run every time."

* * *

I had a most delightful visit on Tuesday of this week with Walter Andersen, sheet metal contractor and warm air furnace installer of the highest order, located at 5654 West Chicago Avenue, Chicago. Nestling in the center of Austin, one of Chicago's very popular resi-

dential sections, this shop does an excellent business, and its proprietor, Walter Andersen, and his associates deserve all the success they have attained in serving the public. In this shop, too, is where our friend, Sam Sorensen, holds forth. Sam Sorensen, as you already know, is the author of "Just a Tinner's Dream," "The Tinner's Fourteen Points" and several other articles of equal merit which have appeared from time to time in AMERICAN ARTISAN. Mr. Andersen also has his two sons in the business with him, and they are rapidly being trained, under his able tutelage, into sheet metal men par excellence.

* * *

I've sometimes wondered why my friend Ed Stahler of the G. & S. Stove and Furnace Company, 4223 West North Avenue, Chicago, is a confirmed bachelor. But I learned something the other day which will perhaps throw a little light on the subject. You know Ed is a rather thrifty lover.

"Why do you want your love letters returned?" asked the seventh girl who had broken her engagement with Ed. "Are you afraid that I'll sue you in court?"

"No," sighed the young Ed, "but I paid quite a bit to have those letters written by an expert, and I may use them again some day."

* * *

'Twas in the town of Dowagiac, famous for its furnaces.

The village philosopher sat in front of the general store and thoughtfully watched the arrival of the congregation at the church opposite.

"Didja ever notice," he asked his companions, "that when the church people meet to pray for rain there ain't nary an umbrella in the crowd?"

* * *

"Oh, Mrs. Harms!" exclaimed a caller to Mrs. George Harms. "Doesn't it make your heart ache to have your husband kill those little birds and rabbits?"

"Why, bless your soul," answered her hostess, rocking comfortably, "he isn't going to kill anything! He's going hunting!"

The Editor's Conning Tower

Loyalty to the Business and How to Get It

LOYALTY is fundamentally a personal quality and always most fervent when encouraged by personal contacts. Every time Grant or Lee was seen by the armies they led, loyalty to their leaders increased. So it was with Sheridan, Logan, Thomas and other generals. And so it is in a business organization. An employee who isn't stimulated to increased interest in the progress of a business by a smile or word of commendation from the man at the head of it, is not so good.

Business is a human thing, absolutely. When it is run as a mere mechanical machine, oiled by wages and salaries, it may run smoothly, but not as efficiently as it would under friendly human contacts. A man's heart must be in his work if he is to do his best. Half-hearted efforts do not count for much in anything, and wages alone cannot take the place of heart interest.

The Importance of Building a Good Reputation

THE man who builds and the man who buys are both beneficiaries of a good reputation. To the one it is a continuous spur and an incentive, to the other the strongest of all guarantees that what he buys is worthy. We sometimes speak of winning a reputation as though that were the final goal. The truth is contrary to this. Reputation is a reward, to be sure, but it is really the beginning, not the end of endeavor. It should not be the signal for a let-down, but, rather, a reminder that the standards which won recognition can never again be lowered. From him who gives much, much is forever after expected.

Reputation is never completely earned, it is always being earned. It is a reward, but in a much more profound sense it is a continuing responsibility. That which is mediocre may deteriorate and no great harm be done. That which has been accorded a good reputation is forever forbidden to drop below its own best. It must ceaselessly strive for higher standards. If your name means much to your public, you are doubly bound to keep faith. You have formed a habit of high aspiration which you cannot abandon, and out of that habit created a reputation which you dare not disown without drawing down disaster.

There is a tyranny which compels men who do good work to go on doing good work. The name of that beneficent tyranny is reputation. There is an inflexible law which binds men who build well, to go on building well. The name of that kindly insurance is reputation. There is an insurance which infallibly protects those whose reason for buying is that they believe in a thing

and in its maker. The name of that kindly insurance is reputation.

Choose without fear that which the generality of men join you in approving. *There is no higher incentive in human endeavor than the reward of reputation, and no greater responsibility than the responsibility which reputation compels all of us to assume.* Out of that reward and out of that responsibility come the very best of which the heart and mind and soul of men are capable.

Definite Relation Exists Between Prosperity and Selling

SELLING is the greatest game in the country today. It pays more profit than any other. It occupies the attention of more clever men than any other. That is because it is more difficult to sell goods today than at any other time in the history of this country.

The harder a thing is to do the more profit comes from doing it and, likewise, the more smart men it attracts.

It is comparatively easy to manufacture commodities today. All there is to that is to have money enough to buy men and equipment. Manual skill is not costly as compared with some other kinds. The man can be found who knows how to make anything which has general recognition, and he will work for a reasonable wage.

That is important when it comes to consider the organization of a sheet metal shop for profit.

But the products the man manufactures are of no value unless they can be sold, except possibly for a museum. Furthermore, they must be sold at a profit. That is where the brains come in. There are so many products demanding a place on the market today that it is getting increasingly harder to sell at a profit. And to cut prices and thus artificially stimulate a market is not selling. That is merely the beginning of another business failure.

How is your sales organization geared? Has it the brains, the force, the size and the coordination necessary to keep pace with the production end working at high speed? Unless it is, you are like a man trying to drive a team composed of a horse and a mule. The team must be matched to pull together and arrive at any definite objective.

Important to You

THE "Data Sheets" by L. W. Millis appearing in *AMERICAN ARTISAN* every week are of extreme value to all warm air furnace installers.

They will help you to understand more clearly the provisions of the Standard Furnace Code.

Therefore do not neglect to read each one carefully and preserve it for future reference.

Measurement of Heat

By L. W. MILLIS*

A THERMOMETER tells us the intensity of heat but gives us no idea of the amount of heat a thing contains. A tumbler full of boiling water might contain a smaller amount of heat than a larger vessel filled with tepid water. It is therefore necessary to measure quantity as well as temperature or intensity.

Everyone is familiar with DEGREES of temperature.

Fuel must be burned to create heat in the furnace. A portion of the heat passes through the heater. Air is admitted into the bottom of the casing and absorbs a portion of the heat on the outside of the furnace castings; also some of the heat absorbed by the casing lining as well as much of the heat absorbed by the casings.

It is apparent that large quantities of air must be used to carry

lighter and could only deliver the additional difference between 2.9572 at 210 degrees and 2.2013 B.t.u. at 140 degrees, or .7459 B.t.u. instead of .9554.

Heating Systems Division
Robinson Furnace to Stage
Exhibit August 30 to 31

The heating systems division of the Robinson Furnace Company wishes to announce an exhibit and demonstration and two-day fan heating convention in connection with the Heat-O Line of furnace fans and boosters to take place at the new Hotel Sherman August 30 and 31.

Manufacturers, jobbers and dealers are cordially invited to attend to see the different types of boosters in operation and to familiarize themselves with the basic principles of fan heating. There will be eight or more talks in design, construction and operation of each fan and booster and their application to fan blast, trunk line, unit heater and standard gravity installations.

The speakers will be manufacturers and dealers who have had practical experience with this work and will be qualified to speak with authority on the subjects assigned them.

Arrangements have been made to accommodate a large number of people for this gathering in view of the tremendous interest that is being shown in the warm air heating industry today in fan systems of all kinds.

Daniel Gifford Representing
T. & B. Mfg. Co. in
Illinois-Indiana Territory

Daniel Gifford is now travelling the Illinois-Indiana territory for the Tuttle & Bailey Manufacturing Company, according to a statement by Dave Farquhar, Chicago branch manager of that company.

Mr. Gifford will be well received by the trade in the territory he has selected to cover.

Properties of Air at a Pressure of 14.7 Pounds Per Square Inch or at Sea Level

Temperature, degrees Fahrenheit	Weight, lbs. per cu. ft.	B.t.u. given up by 1 cu. ft. cooling to zero	B.t.u. given up by 1 cu. ft. cooling to 70 deg.
0 .....	.08635	.0	
6 .....	.08523	.1214	
10 .....	.08451	.2007	
20 .....	.08275	.3931	
40 .....	.07944	.7547	
55 .....	.07712	1.0074	
60 .....	.07638	1.0885	
70 .....	.07494	1.2459	.0
100 .....	.07093	1.6847	.3388
140 .....	.06620	2.2013	.9554
180 .....	.06206	2.6532	1.4073
210 .....	.05929	2.9572	1.7113
260 .....	.05517	3.4069	2.1610

Quantity is expressed in British thermal units. It is written B.t.u. heat required to raise 1 cubic foot of air 55 degrees or 55 cubic feet of air 1 degree (or 1 pound of water 1 degree). If it is known how much heat (B.t.u.) a room requires, it is possible to make a calculation of the quantity and temperature of air that must be delivered to maintain the temperature of the room.

*This is "Data Sheet" No. 2, by L. W. Millis, of the Warm Air Study Club, The Security Stove & Manufacturing Company, Kansas City, Missouri, and comprises the second of a series of articles designed to interpret the findings of the University of Illinois Research Staff on warm air heating into the language of the workman. These articles will be published later in pamphlet form.

heat from the furnace to the place it is needed. For example, it would require 500 cubic feet of air raised from 70 degrees to 180 degrees (110 degrees rise) to absorb 1,000 B.t.u. The density of the air affects its capacity to absorb heat. In fact, the capacity of a B.t.u. to heat air should be calculated by weight of the air instead of cubic feet. However, the installer of furnaces will find it easier to think in cubic feet.

If air entered a room at 140 degrees and is cooled down to 70 degrees, it would impart the difference between 2.2013 B.t.u. and 1.2559 B.t.u., which is .9554 B.t.u.

We might think that in order to deliver twice as much heat to the room that we could do so by warming the air to an additional 70 degrees, but the air would be

Sheet Metal Charlie Sells Six Furnaces as Result of Window Display

Says Public Was Not Aware That He Did Such Work Until Display Was Made

THE accompanying window display is that arranged by Sheet Metal Charlie and entered into the Illinois Travelers' Auxiliary window display competition.

Here's what Sheet Metal Charlie has to say about the window display and its value as an adjunct to personal salesmanship:

"This window display was started March 1, 1927, and will be displayed until after the convention. Up to date we have sold six furnace jobs, and several gutter jobs as a

direct result, we have quite a number of comments on the display.

"People come into the store and make the remark that they didn't know we sold or erected sheet metal in connection with our hardware line.

"I think this medium of advertising is much better than any other way of reaching the public. It lets the public know that we carry this merchandise and also we have men to erect it.

"I think the most important points

and facts to bring to the eyes of the public is the National, State and Local Slogan.

"Use Sheet Metal for Beauty and Permanence."

"The emblem of the Standard Code of correct Warm Air Heating Installation issued and suggested by the National Warm Air Heating and Ventilating Association, of Columbus, Ohio.

"Warm Air heat means Health, Warm air, Fresh air, Moist air.

"Following is list of sheet metal



Warm Air Furnace Display Used by Sheet Metal Charlie

items which can be made of sheet metal, also shown in window and photograph.

"Warm air furnace galvanized bonnets, casings shoes, cold air pipes and elbows angles, ceiling plates, draw bands, smoke pipe and elbows, dampers and collars.

"Tin furnace double wall pipe, heads, boots and angles, register box, offsets, tees and nested pipe.

"Galvanized corrugated roofing, ridge roll, finals, down spout elbows, cutoff, heads, eave trough, mould cutter, O G gutter, miter, tubes and ends, V ridge capping, wall ties, corner bead, Revolving chimney top ventilator, batting strips, metal corner, ventilator, skylight, side wall flashing, ridge cresting, cresting, block, pilaster, hip shingle, corner trimming, weather board siding, tank floats, hog trough, stock, tower, wagon, tanks.

"Valley tin, tin shingle, flat metal tile shingle, flat seam roofing, standing seam roofing, speaking tube, elbow and whistle, acid swabs.

"All different flat sheets, galvanized, tin, copper, zinc, Black L nickerled, perforated, polished blue.

"Steel ceiling, wall siding, filler, cornice, field, scrool, cove, moulding, rosettes.

"Zinc and brass weather strip-ping, spun ball, wash boiler bottoms.

"Stove pipe and elbow, reducer and collars, thimbles, flue stops.

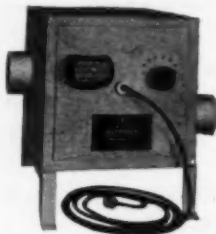
New Design Ozonator for Warm Air Furnace Installation Makes Appearance

The steadily growing demand for better warm air heating and ventilating is reflected in many ways.

The use of ozone machines in warm air heating systems is increasing with this demand, for, with it, many desirable results may be obtained, according to statements issued by the Air Conditioning and Engineering Company of St. Louis, Missouri. This company has recently put on the market a new design of their Electrozone type D Ozonator for warm air furnaces

which is entirely enclosed in a sheet metal housing with ozone regulator and fuses in an easily accessible position on the outside of the casing.

Included in the equipment is an air filter, also a length of cord with attachment plug for connecting to electrical outlet. The Electrozone, they state, is meeting a wide demand for a device to renew and purify the air in the home. All odors, including those from cooking, are neutralized and quickly



Showing the Machine

eliminated through the process of oxidation.

The Company say that this apparatus provides clean, invigorating air and does not increase fuel consumption. The recirculating warm air heating system, they say, provides a most effective and easy method of applying the Electrozone air conditioning unit in the home. The use of the Electrozone makes it possible to purify the recirculating air.

The Air Conditioning and Engineering Company is issuing a very instructive booklet explaining ozone and the operating principles of the Electrozone which may be had by addressing them at 2914 South Jefferson Street, St. Louis, Missouri.

Tuttle & Bailey Mfg. Co. Has New Catalog on Newly Developed Lines

Several improvements in convenience, beauty and educational value mark the recent catalog of Tuttle & Bailey Manufacturing Company, makers of registers, ventilators, grilles, screens and radiator cabinets. It is 8½ by 11 inches, which is the architect's standard size for catalogs. The catalog as prepared for heating and ventilating installers contains about 45 pages printed on beautiful paper and with clear

cuts and type matter.

A feature is the page showing eight different Tanbo finishes for registers shown in their actual colors and shadings. With this page the dealers can show proper colors to match furniture or wall decorations. A couple of pages are devoted to definitions and specifications and then come several pages of merchandise illustrations.

Cobble registers, illustrated herewith, have been on the market only two years but are selling extremely well as they prevent the foot from slipping and give an extra radiating surface which keeps the registers from becoming overheated.

Wafer registers have been sold only in the reverse style but a new popular priced number has been added—one way wafer registers for shallow flues.

A new center movement device for opening and shutting the fan is shown. This is based on a well known principle of mechanics which is now, for the first time, applied to registers. It is easy to operate, but the fan stays in any position set and does not drop shut from vibration.

As illustrated herewith, a new use is shown for baseboard registers which will set against but out from the baseboard.

By a very convenient type arrangement the dealer can find list prices of various finishes of registers and "faces only" without hunting through several pages of a catalog and the type in the price section is arranged for quick reference.

This catalog will be gladly sent to those who write Tuttle & Bailey Manufacturing Company, 441 Lexington Avenue, New York City.

John A. Feinaigle Buys Sheet Metal Shop in Hooper, Nebraska

John A. Feinaigle, formerly of Nebraska City, Nebraska, has purchased the sheet metal and radiator shop at Hooper, Nebraska, and took charge there on August 1, 1927.

Mr. Feinaigle would like to receive catalogs from manufacturers of sheet metal products and warm air heating apparatus.

Points to Necessity of Following Advertising Leads to the End

Shows How Man Who Takes Pains to Do This Gets Business Which Seemed Hopeless

REPLIES to the advertising of the Association are coming in ever increasing numbers, say the *Furnace Installer*. More and more people are building homes or planning to build them when the good weather sets in. They are thinking of furnaces, roofs and other details of the new home.

An Incident Will Illustrate

Some dealers who receive these advertising inquiries reply to Association headquarters that the prospect will not be ready for several months or perhaps a year and, evidently, dismiss the entire matter as closed.

An interesting incident on this point came to light last week. A manufacturer received a reply from his advertising from a distant state. He sent a local dealer to follow it up and found that it had come from an old lady who lived quietly and modestly in a small house already supplied with a furnace. This old lady simply wanted to know what changes had been made in home heating during recent years, just for the sake of satisfying her curiosity. The dealer who happened to call on her took a good deal of time—wasted time he thought—to tell her all about recirculating warm air heating, installed according to the Standard Code. He left her literature and then sent her a letter for reference after he returned to his office.

Now it so happened that this old lady asked two other dealers for particulars about warm air heating. Like the first one, they called upon her and found that she was such a hopeless prospect that they wasted no further time on her.

Unknown to any of these dealers, the old lady came into an estate, six months after they had followed up her lead. She decided not only to

invest in certain securities but also to build some houses for speculation. This she did. There were eight of them; all well built and fairly large houses. Who do you suppose she called on when it was time to talk heating for those homes? Yes, you have already guessed it. The first dealer not only got the order but he did not have to submit prices for the jobs. The other dealers were not even considered. Did it pay to follow that apparently hopeless lead? Ask the dealer who installed the jobs and learn his reaction!

That is an extreme case, of course. Nevertheless it did happen and it illustrates the uncertainties of many advertising leads that seem but curiosity inquiries. The unexpected so often happens that it pays to follow every lead just as though the prospect were all ready to sign on the dotted line.

Relating a Second Incident

At another time a dealer who called upon a person sending in an advertising coupon found the person to be a boy of 12 who just wanted to have some fun. Another hopeless lead you say? But listen. Here's what happened in this case.

The dealer called in the evening and found that the boy's mother was quite distressed at her son having caused so much trouble. She was in a frame of mind to listen to the dealer's argument. He told her his story, looked over the heating system in the house, showed her where it was faulty and then explained the advantages of a good modern Code job. Within ten days he had the order to go ahead with the job.

As a matter of fact when the dealer called, that boy's mother had no more thought of installing a new heating system than she had that her

son had sent in the coupon. But the dealer was a good salesman. He did not allow the matter to drop.

Leads such as the two mentioned are, of course, exceptional. A dealer might be excused for considering them hopeless even though they resulted in business. But there are many dealers who look upon leads that will be cold for another year as not worth bothering with. This is evident in many of the replies received at Association Headquarters from dealers. As a matter of fact such leads are just as good as the ones who are ready to sign immediately. They are postponed, that is all. Perhaps these dealers don't expect to be in business a year from now. Or maybe they figure they will have all of the business they want at that time. Whatever the reason for such an attitude, it stands in the way of profitable business.

Advertising Can Only Tell the Story

The most advertising can do is to tell the story and arouse enough interest to prompt the individual to seek more. It can't sell a job. It should not be expected to. That is the dealer's business. Nor can it be expected to sift out from all of the people interested in a given commodity only those who are ready to buy during the current month.

If advertising arouses a person sufficiently to cause him to sign a coupon and spend two cents to send it in, it has fulfilled its mission. If the prospects include those who are ready to buy at once and those who will be ready at intervals of from a few weeks to a year or more, it is all the better since it then provides a future list that fills in when business slows up.

Follow every lead until the end; i. e., until the prospect has bought a warm air system or until it is sure that he is definitely out of the market.

The Small Order Has Come to Stay in Hardware

Small orders in hardware have come and will stay as long as the territories are congested, according to R. L. Patterson. I am a firm believer in small orders, all things being equal, and have been since 1921, when all dealers felt the effect of the drop in business.

For several years we had preached to us in all the magazines the necessity of quick turnover, "buy light and keep it coming." Some jobbers say they lose money when the order is less than \$22.50, but I say, gentlemen, that the jobber who equips his shipping department to take care of small orders is the one who will get the big ones.

I don't want to talk too much about my own business, but you know a man who is thoroughly sold on his own can't help but talk some about it. Last year our sales were between \$128,000 and \$129,000 and, of course, there were many carload orders in this amount of business. But with all that, we had a great amount of small orders, and rightly so. We must have an outlet or we can't buy.

It is an utter impossibility for a dealer to carry all he is asked for. We sell hardware, implements, harness, stoves, ranges, well goods, pipe and fittings, plumbing and heating and general repairs, and I say to you, I keep orders coming all the time and a lot of small ones.

Now in 1920, the readjusting period, the salesmen who were calling on us will remember how I had to say, "No, I am not buying." A few of them went away pretty well disgusted, but it saved me a lot of financial trouble later on.

We have at the present time about twelve to fifteen hardware salesmen calling on us and they are a lot of nice fellows. But supposing I buy from every one of those salesmen, there would be a lot of small orders. I changed my buying methods for 1926 and I guess I have gotten in bad with some, but I am buying 90 per cent of my hardware merchandise from four houses. Now that

means a pretty fair business for these, doesn't it? Suppose I had bought from the fifteen, where would I be? A lot of poor, measly orders.

Do any of you hardware dealers get hard up when you have about \$50,000 to \$60,000 on your books? I do. But I don't have as much trouble asking four houses for an extension as I would fifteen. No, sir. I never have gotten any but the very nicest letters and I don't hear any complaints on small orders from them.

The effect is that the dealer who does not carry any adequate stock and depends on small orders all the time is going to lose sales, profit and gradually lose his customers. I have found that at the present state of competition people will not wait. They go to the man who carries the goods.

H. D. Crandall Buys Lehnen Sheet Metal Works at Grand Rapids, Michigan

H. D. Crandall, formerly Michigan representative for the Henry Furnace & Foundry Company, has purchased the Lehnen Sheet Metal Shop, owned and operated by George Lehnen, 1009 South Division Street, Grand Rapids, Michigan.

Mr. Crandall will do sheet metal contracting and warm air furnace installing. According to the letter head of the Lehnen Sheet Metal Shop they are exclusive agents for the Moncrief warm air furnaces.

Roger Eads and Sons, George and Harry, Will Enter Business at Cedar Lake, Ind.

Roger Eads, with his two sons, George and Harry, and his brother-in-law, Earl Hilton, has entered the warm air heating industry at Cedar Lake, Indiana.

Mr. Eads is a thorough, practical heating engineer and sheet metal man. He has been associated with the warm air heating and sheet metal industries practically all of his business life. In his early years he was with his father in the hardware business. Later he went with Van

Nordyke & Bunnell, Hammond, Indiana. He also operated his own business under the name of the Hammond Cornice Works, but ill health made him seek another line of work.

Mr. Eads' brother-in-law, who is an expert plumber, will handle the plumbing end of the business.

Mr. Eads will be glad to receive catalogs from the various manufacturers.

Vacation Months Have Their Uses, Too

July and August are referred to often as the months during which most of us dislike to do much more than the merest routine because Jack or Bill are on their vacation.

Maybe so, . . . but has it occurred to you that they are wonderful months for taking a mental inventory . . . of making plans . . . of rubbing a finger over the furniture to feel for dust . . . of getting set for the busier periods?

August with its "dog days" offers splendid opportunities for a little mental sight-seeing. We may not want to rush about, but the old brain mill can spin around as fast as at any other time.

Retail Hardware Doings

Iowa.

Clinton Mullen has purchased the hardware stock of C. M. Watkins, Gilmore City.

Minnesota.

The Hurley Hardware store, Roscoe, suffered a fire loss of \$10,000.

Missouri

Hargett and Morris have sold their interest in the Versailles Hardware Company, Versailles, to Mr. Claybourne.

Oklahoma.

Harold Rogers is the new manager of the Champlin Hardware Company, Enid.

Texas.

The Scurr Hardware Company, 214 Houston Street, Fort Worth, suffered a fire loss of approximately \$5,000.

J. C. Hawks, Mayor of Lancaster, has purchased the controlling interest in the Community Hardware Company.

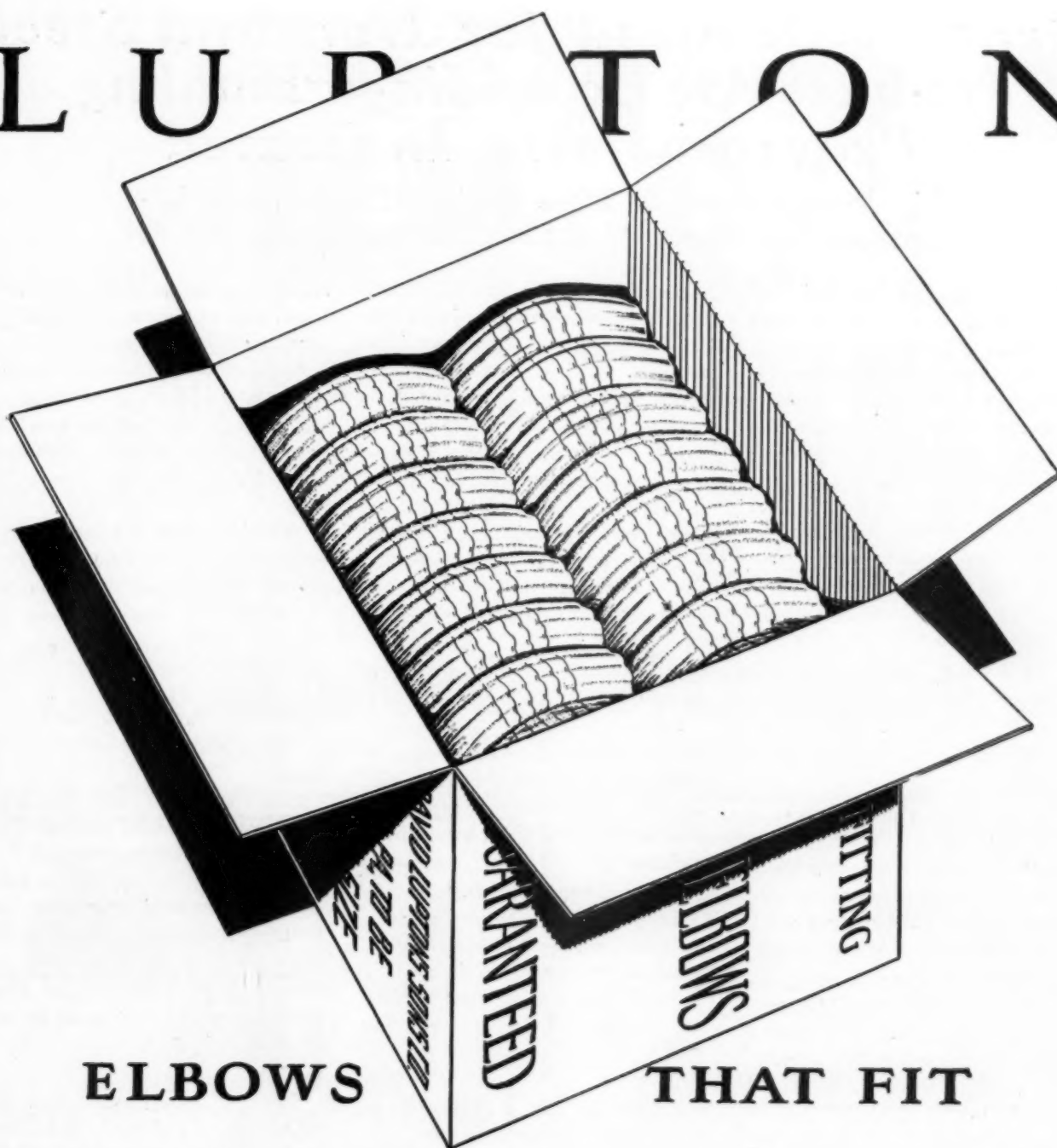
E. C. Fox is now the new manager of the National Hardware and Stove Company, Paris.

Wisconsin

E. Heebink has purchased the interest of his partner in the Snoenbas and Heebink Hardware Company.

The Wanner Brothers, hardware dealers at Almena, have moved into new quarters in the old Farmers' Store building.

L U P T O N



ELBOWS

THAT FIT

You land the job. You figure close and you don't want to pay for anybody else's mistakes.

That's why it's a good plan to use Lupton Elbows . . . Lupton Elbows come to you cleanly galvanized, perfectly shaped, and pro-

tected from dents and dirt by the special Lupton cartons . . . A shipment of Lupton Elbows means a more profitable job for you—with no "misfits" to slow up the work. There's no difference in price, so use Lupton Elbows and know you're right. . . . *Specify them to your Jobber.*

DAVID LUPTON'S SONS CO., ALLEGHENY AVE. & TULIP ST., PHILADELPHIA

When writing mention AMERICAN ARTISAN—Thank you!

General Demand for Iron and Steel Products Are Expanding—Building Programs Are Indicated

Pig Iron Market Is More Active—Lead Prices Advance—Nonferrous Metal Market Generally Steady

THOSE lines of iron and steel which have not actually come into greater demand in the past fortnight are finding a brighter prospect opening up. Automotive requirements are being released now that the new models have been presented, fall building programs as expressed in demand for structural steel and reinforcing bars are expanding, farm implement manufacturers have lengthened their schedules and the general run of consumers seems about to cover its needs for the usual fall spurt in business.

Demand for iron and steel generally continues on a moderately ascending scale.

Pig Iron

Pig iron market developments at Pittsburgh are meager. Relatively little third quarter business is yet to be placed, for while not much open market inquiry has appeared much business has been quietly closed.

A Johnstown, Pennsylvania, radiator manufacturer bought 3,000 tons of foundry iron from a steelworks interest there at around \$18 furnace. Large tonnage of No. 2 plain and malleable would be quoted \$17.50 valley, although no inquiries are pending at this time. Small lots up to 250 tons at a time are selling at \$18, valley, for the base grade, with 50-cent silicon differentials.

It is reported here that one concern closed on about 3,000 tons of basic with a Massillon steelworks, at a price between \$17 and \$17.50, valley equivalent.

Average sales prices in June on bessemer and basic iron, respectively, were \$18.50 and \$17.50. These compare with \$18.895 and \$17.857, respectively, for June.

At Chicago reduction of foundry and malleable iron to \$19.50 is not

stimulating buying, but sales are more numerous due largely to more activity in several consuming lines and low stocks of iron in consumers' hands. Purchases are trimmed to actual needs.

July sales were ahead of shipments, and considerably over June. It is estimated 60 to 65 per cent of third quarter iron has been placed. A heavy aggregate was sold in the past two weeks.

Inquiries are largely for carload lots. Spot selling was slightly heavier during the latter part of the past week.

Pig iron production at Birmingham is somewhat better than a month ago. However, probabilities are for curtailment shortly. The quotation still is \$17.25, base, Birmingham.

A round tonnage of basic iron is being shipped to a consumer near the Ohio line, and a little foundry is going north of the Ohio river. It is expected that surplus stock on furnace yards will be reduced this month.

Copper

Copper has sold at 13.00 cents to 13.25 cents Connecticut in the past week in a moderate way and slightly higher in the Midwest.

Previous sales have been mostly not later than September but interest now is largely in September-October.

Tin

The tin market has had both active and quiet days in the past week, and prices have gone up more than 1 cent. Spot and two months are at the same figure, which is unusual.

Business has been largely in futures as users seem to be of a mind lately to cover a little better

ahead than in the past year, perhaps because prices are a little under average of the past year.

Domestic shipments last month were 5,950 tons or a few hundred under the year's average, which is normal at the season. Domestic stocks are of good size.

Zinc

The zinc market has been stronger and prices have continued to rise. Buying has not been large but the ore market has held firm and the tendency in London has been upward, which, coupled with the sentimental influence imparted by the rise in the other metals, has tended to strengthen prices here.

Lead

Good buying of lead has been done by all classes of consumers of late. The market has responded to the renewed interest and prices have steadily advanced, until at the moment the market is quoted on the highest level in months.

Lead product prices also have been advanced in line with the increases in pig lead.

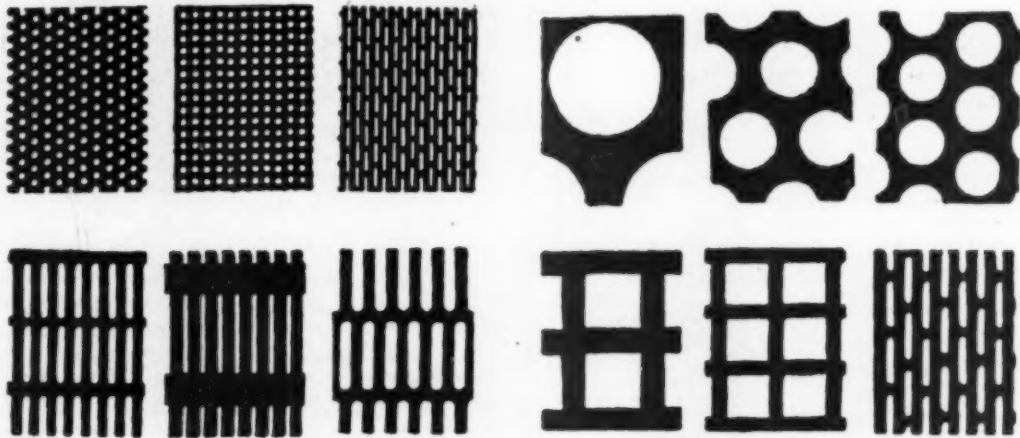
Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$40.25; commercial 45-55, \$37.25; plumbers', \$34.25, all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$17.00 to \$17.50; old iron axles, \$20.00 to \$20.50; steel springs, \$14.75 to \$15.25; No. 1 wrought iron, \$11.50 to \$12.00; No. 1 cast, \$12.75 to \$13.25, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, 3½ cents; cast aluminum, 13¾ cents.

PERFORATED METALS



All Sizes and Shapes of Holes in all Kinds and Thicknesses of Metal.

Punched Metal Grilles, Register Faces, Ventilators, etc.

Guard Material for Machines and Belts. We supply a complete line of Accessories

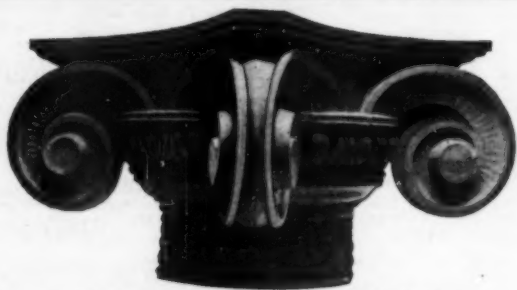
Screens for Grain, Minerals or anything to be screened.

Perforated Tin and Brass always in stock

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE STREET, CHICAGO, ILLINOIS, U. S. A.

New York Office: 114 Liberty Street



GEROCK BROS. MFG. CO.
SHEET METAL ORNAMENTS
AND STATUARY
1252 So. Vandeventer Ave., St. Louis, Mo., U.S.A.
Write for Catalogue

EVERYTHING FOR THE TINSMITH

WE are manufacturers as well as merchants and we at all times have on hand a large complete stock of everything that you may be in need of.

Try us on your next order.

This is our motto:

"EVERYTHING MUST BE RIGHT"

Write today for our latest catalog

BERGER BROS. CO.

WAREHOUSES AND FACTORY: 100 TO 114 BREAD STREET
229 TO 237 ARCH STREET, PHILADELPHIA, PA.

Manufacturers of "Quaker City" line of Miters,

THE J. M. & L. A. OSBORN COMPANY

1541-51 East 38th Street

CLEVELAND, OHIO

Buffalo Warehouse

64-68 Rapin Street

"Everything Used in Sheet Metal Work"



I SAY JACK!

THAT'S A MIGHTY FINE SHEET METAL JOB ON THAT HOUSE OF YOURS.

IT SURELY IS BILL, I LET MY CONTRACTOR USE HIS JUDGMENT AND HE USED—

"GALVANIZED ARMCO INGOT IRON"

THE OSBORN CO. RECEIVED THE FIRST SHIPMENT OF GALVANIZED "ARMCO INGOT IRON" SHEETS THE MILL EVER MADE AND IT IS ONE OF THE LARGEST DISTRIBUTORS YET.

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON

Chicago Fdy. No. 2	\$19 50
Southern Fdy. No. 2	23 26
Lake Superior Charcoal	27 04
Malleable	19 50

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 112 sheets	\$25 10
IX 20x28 112 sheets	29 60
IXX 20x28 56 sheets	16 20
IXXX 20x28 112 sheets	17 55
IXXXX 20x28 112 sheets	18 95

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$26 00
IX 20x28, 40-lb. 112 sheets	28 50
IX 20x28, 25-lb. 112 sheets	21 75
IX 20x28, 25-lb. 112 sheets	24 35
IC 20x28, 20-lb. 112 sheets	20 00
TV 20x28, 20-lb. 112 sheets	22 50
IC 20x28, 15-lb. 112 sheets	18 50

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including	
1/4 in.—100 lbs.	\$4 55

COKE PLATES

Cokes, 80 lbs., base, 20x28	\$13 40
Cokes, 90 lbs., base, 20x28	13 80
Cokes, 100 lbs., base, 20x28	14 00
Cokes, 107 lbs., base, IC	
20x28	14 30
Cokes, 135 lbs., base IX	
20x28	16 40
Cokes, 155 lbs., base, 56 sheets	9 20
Cokes, 175 lbs., base, 56 sheets	10 05
Cokes, 195 lbs., base, 56 sheets	10 90

BLUE ANNEALED SHEETS

Base 10 ga. up to and including	\$3 50
"Armco" 10 ga. per 100 lbs.	4 00

ONE PASS COLD ROLLED BLACK

No. 18-20.....per 100 lbs.	\$3 75
No. 22.....per 100 lbs.	3 90
No. 24.....per 100 lbs.	3 95
No. 26.....per 100 lbs.	4 05
No. 27.....per 100 lbs.	4 10
No. 28.....per 100 lbs.	4 20
No. 29.....per 100 lbs.	4 35
No. 30.....per 100 lbs.	4 45

"ARMCO" GALVANIZED

"Armco" 24.....per 100 lbs.	\$6 15
-----------------------------	--------

GALVANIZED

No. 16.....per 100 lbs.	\$4 30
No. 18.....per 100 lbs.	4 45
No. 20.....per 100 lbs.	4 60
No. 22.....per 100 lbs.	4 65
No. 24.....per 100 lbs.	4 80
No. 26.....per 100 lbs.	5 05
No. 27.....per 100 lbs.	5 15
No. 28.....per 100 lbs.	5 30
No. 30.....per 100 lbs.	5 70

BAR SOLDER

Warranted	
50-50.....per 100 lbs.	\$40 25

Commercial	
45-55.....per 100 lbs.	37 25
Plumbers.....per 100 lbs.	34 25

ZINC

In Slabs.....	\$ 8 50
---------------	---------

SHEET ZINC

Cash Lots (600 lbs.).....	\$11 75
Sheet Lots.....	12 75

BRASS

Sheets, Chicago base.....	17 1/2 c
Mill Base.....	18 c
Tubing, brazed base.....	26 1/2 c
Wire, base.....	18 1/2 c
Rods, base.....	15 1/2 c

COPPER

Sheets, Chicago base.....	22 c
Mill Base.....	21 c
Tubing, seamless base.....	25 c
Wire, No. 9, B & S Ga.....	18 1/2 c
Wire, No. 10, B & S Ga.....	18 1/2 c
Wire, No. 11, B & S Ga.....	19 c
Wire, No. 8, B & S Ga. and heavier.....	17 1/2 c

LEAD

American Pig.....	\$7 65
Bar.....	8 65

TIN

Big Tin.....per 100 lbs.	\$72 00
Bar Tin.....per 100 lbs.	73 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16.....	6c per lb.
Roll board.....	6 1/2 c per lb.
Mill board 3/32 to 1/2.....	6c per lb.
Corrugated Paper (250 sq. ft. to roll).....	\$6 00 per roll

BRUSHES

Hot Air Pipe Cleaning	
Bristle, with handle, each	\$0 85
Flue Cleaning	
Steel only, each.....	1 25

BURRS

Copper Burrs only.....	40-5%
------------------------	-------

CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 40
American Seal, 10-lb. cans, net	50
American Seal, 25-lb. cans, net	2 00
Pecora.....per 100 lbs.	7 51

CHIMNEY TOPS

Adams' Revolving	
Wt. Doz.	Prize Doz.
4 in.....21 lbs.	\$11 00
6 in.....24 lbs.	11 50
7 in.....30 lbs.	13 50
8 in.....32 lbs.	15 00
9 in.....51 lbs.	16 50
10 in.....54 lbs.	18 00
12 in.....65 lbs.	22 00
14 in.....110 lbs.	36 00

CLINKER TONGS

Front Rank, each.....	\$0 75
Per doz.....	8 40

CLIPS

Damper	
Acme, with all tail pieces, per doz.....	\$1 25
Non Rivet tail pieces, per doz.....	25

COPPERS—Soldering Pointed Roofing

3 lb. and heavier.....per lb.	40c
2 1/2 lb. ....per lb.	45c
2 lb. ....per lb.	48c
1 1/2 lb. ....per lb.	55c
1 lb. ....per lb.	60c

CORNICE BRAKES

Chicago Steel Bending	
Nos. 1 to 6B.....	Net

CUT-OFFS

Gal. plain, round or cor. rd.	
26 gauge.....	30%
28 gauge.....	35%

DAMPERS

"Yankee" Hot Air	
7 inch, each 20c, doz.....	\$1 75
8 inch, each 25c, doz.....	2 40
9 inch, each 30c, doz.....	2 75
10 inch, each 32c, doz.....	3 00

Smoke Pipe	
7 inch, each.....	\$0 35
8 inch, each.....	40
9 inch, each.....	40
10 inch, each.....	60
12 inch, each.....	90

Reversible Check	
8 inch, each.....	\$ 56
9 inch, each.....	70

Diamond Smoke Pipe	
7 inch, doz.....	\$ 5 00
8 inch, doz.....	8 00
9 inch, doz.....	12 00
10 inch, doz.....	15 00

Adams' Sheet Metal

7 inch, doz.....	\$ 1 60
8 inch, doz.....	2 20
9 inch, doz.....	2 60
10 inch, doz.....	3 80

DIGGERS

Post Hole	
Iwan's Split Handle	
4-ft. Handle.....per doz.	\$14 00
7-ft. Handle.....per doz.	36 00
Iwan's Hercules pattern, per doz.....	14 90

EAVES TROUGH

Galv. Crimpedge, crated 75 & 5%	
Zinc, "Barnes".....	60%

ELBOWS

Conductor Pipe	
Galv., plain or corrugated, round flat Crimp.	
28 Gauge.....	60%
26 Gauge.....	45%
24 Gauge.....	15%
Galv. & Terne Steel	
Plain Rd. and Rd. Corr.:	
28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

Square Corrugated

No. 28 Gauge.....	50%
26 Gauge.....	35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested.....	70 & 5%
Nested solid.....	70 & 5%

Sq. Corr., A. & B. & Octagon:

28 Ga.	50%
26 Ga.	35%

Portico

1", 1 1/4", 1 1/2".....	45%
-------------------------	-----

Copper

16 oz., all designs.....	45%
--------------------------	-----

Zinc—

All styles.....	60%
-----------------	-----

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue	
"Milcor" No. 28 Gauge, Doz.	
5-inch.....	\$1 25
6-inch.....	1 25
7-inch.....	1 75

Special Corrugated

6-inch.....	\$1 00
7-inch.....	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue, Doz.	
5-inch.....	\$1 75
6-inch.....	1 85
7-inch.....	2 15

WOOD FACES—50% off list.

FENCE	
1/26-6-12 1/4% (100 rods).....	\$28 68
1/26-6-14 1/4% (100 rods).....	43 62

FILES AND RASPS

Heller's (American).....	50-10%
American.....	60-10%
ArCADE.....	50%
Black Diamond.....	50%
Eagle.....	50%
Great Western.....	50%
Kearney & Foot.....	50%
McClellan.....	50%
Nicholson.....	60%
Simonds.....	60%

FIRE POTS

Clayton & Lambert's	
East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Amarillo, San Angelo and Laredo, Texas.....	52%
West of above boundary.....	48%

Geo. W. Diener Mfg. Co.

No. 62 Gasoline Torch, 1 qt.	\$ 5 55
No. 0250, Kerosene, or Gasoline Torch, 1 qt.	7 50
No. 10 Tinner's Furn. Square tank, 1 gal.....	12 50
No. 15 Tinner's Furn. Round tank, 1 gal.....	12 00
No. 21 Gas Soldering Furnace.....	3 60
No. 110 Automatic Gas Soldering Furnace.....	10 50

Double Blast Mfg. Co.

Gasoline, Nos. 25 and 36.....	60%
-------------------------------	-----

Quick Meal Stove Co.

Vesuvius, F. O. B. St. Louis	30%
(Extra Disc. for large quantities)	

GALVANIZED WARE

Pails (Galv. after made), 10-qt.....	\$2 12
Tubs (Galv. after made), No. 1.....	6 00
No. 2.....	6 85

GLASS

Single Strength, A, 2 1/2-in. brackets.....	87%
Single Strength, A, 3 1/2 to 40-in. bracket.....	86%
Single Strength, A, all other brackets.....	86%
Double Strength, A, all sizes.....	86%

HANGERS

Conductor Pipe	
Milcor Perfection Wire.....	25%
Eaves Trough	
Milcor Eclipse Wire.....	15%
Milcor Triplex Wire.....	10%
Milcor Milwaukee Extension 10%	
Milcor Steel (galv. after forming) List.....	plus 12 1/4%
Milcor Selflock E. T. Wire, List.....	plus 50%

HOOCS

Box	
V. & B. No. 1, each.....	\$0 26
Conductor	
"Direct Drive" Wrought Iron for wood or brick.....	15%

Hay	
V. & B. No. 1, each.....	\$0 26

HUMIDIFIERS

"Front-Range" Automatic	
In single lots.....	50%
In lots of 10 or more.....	50 50%
In lots of 25 or more.....	50-10%
Vapor pans, etc., each.....	50%

LIFTERS

Stove Cover	
Coppered.....per gro.	\$6 00
Alaska.....per gro.	4 75

MALLETS

Tinners	
Hickory.....per doz.	\$2 25

MITRES

Galvanized steel mitres, 28 Ga.....	70
26 Ga.....	60-20

NAILS

Cut Steel.....	\$4 35
Cut Iron.....	4 35

Wire	
Common.....	2 95
Cement Coated.....	2 95

(Continued on Page 36.)



**ARCHITECTURAL
SHEET METAL
ORNAMENTS**
Made of
**ZINC
COPPER
BRONZE
OR
LEAD**
Also
METAL CEILINGS

SPECIALISTS IN SPECIAL WORK
**ESTIMATES SUBMITTED ON RECEIPT
OF
BLUE PRINTS OR DRAWINGS**

Ornamental Catalogue No. 50 on request
FRIEDLEY-VOSHARDT CO.
Office: 733-737 So. Halsted St.
Factory: 761-771 Mather St.
CHICAGO ILLINOIS
Milwaukee Office: 853 Grant Blvd.

The NEW IMPROVED "STANDARD"
ROTABLE VENTILATOR



Patented

THIS favorite ventilator has been further improved to insure—
*Greater Durability
Quieter Operation
Greater Efficiency
Better Balance*

The New Cone-top Suspension, new Bronze Guide Bushings, and Cross-Braced Skirt are the new features. Let us tell you in detail all about this better ventilator.

Write for special circular and prices today

"Standard" Ventilator and Chimney Cap—
Most Efficient Combination on the market.
STANDARD VENTILATOR CO., Lewisburg, Pa.


The Double-Duty BRAKE SHEARS

"All-Rite" Model to cut 20 gauge and lighter 8 foot shears - \$55.00
"Special" geared to cut 16 gauge and lighter " " - \$77.50
"Hand Pull" for lighter work and small shops Cutting Carrier \$17.50

Fold up out of the way so brake work can be done.
All lengths.
A time and money saver fully guaranteed.
Fit any brake.

ORDER NOW
10 DAYS' FREE TRIAL.
DOUBLE-DUTY MFG. COMPANY
32 B So. La Salle Street Aurora, Ill.

WHEN you write to advertisers please mention that you saw it in
AMERICAN ARTISAN



Round Corrugated Plain Round

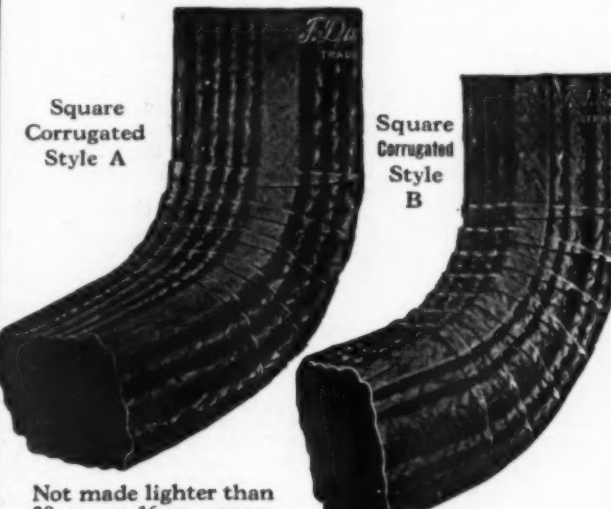
NEVER MADE WITHOUT THIS
TRADE F. Dieckmann MARK

Quality and Service Made 'em Famous

Made of one piece of heavy gauge material, in all styles and angles from 10 to 90 degrees, of 24, 26, 28 ga. ternes, then galvanized after formation.

**DIECKMANN
Elbows and Shoes**
*are the standard of the market
and always give satisfaction*

Send for new catalogue 26 showing complete line
The Ferdinand Dieckmann Co.
P. O. Station B, Cincinnati, O.



Square Corrugated Style A Square Corrugated Style B

Not made lighter than 28 ga. or 16 oz. copper

ADVERTISERS' INDEX

The dash (—) indicates that the advertisement runs on a regular schedule but does not appear in this issue.

A		M	
Aeolus-Dickinson Co.....	37	Majestic Co., The	—
Agricola Furnace Co.....	12	Marshalltown Mfg. Co.	—
Akrat Ventilators, Inc.....	42	May-Fiebeger Co.	—
American Foundry & Furnace Co.	—	Merchant & Evans Co.	—
American Furnace Co.	—	Meyer & Bro. Co., F..Back Cover	—
American Rolling Mill Co....	—	Meyer Furnace Co., The.....	2
American Steel & Wire Co....	39	Michigan Fireproof Skylight Co.	—
Arex Co.	42	Milwaukee Corr. Co..Front Cover	—
Automatic Humidifier Co.	—	Monitor Furnace Co.	—
		Mt. Vernon Furn. & Mfg. Co....	—
		Mueller Furnace Co., L. J....	—
B		N	
Barnes Zinc Products Co....	—	National Heatcraft Institute..	—
Beh & Co.	9	New Jersey Zinc Sales Co., The	—
Berger Bros. Co.	33	Northwestern Stove Repair Co. 8	—
Berger Co., L. D.	—		
Brillion Furnace Co.	—		
Bertsch & Co.	39		
Buckeye Products Co.	7		
Burgess Soldering Furnace Co. —	—		
C		O	
Calkins & Pearce	7	Osborn Co., The J. M. & L. A. 23	—
Central Alloy Steel Corp.	—		
Chicago Elbow Machine Co....	—		
Chicago Solder Co.	37		
Clayton & Lambert Mfg. Co....	—		
Cleveland & Buffalo Transit Co.39	—		
Cleveland Castings Pattern Co. 8	—		
Colburn Heater Co.	—		
Connors Paint Co., Wm.....	—		
Cortright Metal Roofing Co....	—		
Copper & Brass Research Association	—		
D		P	
Diamond Mfg. Co.	—	Parker-Kalon Corp.	—
Dieckman Co., Ferdinand.....	35	Peck, H. E.	42
Diener Mfg. Co., Geo. W.....	37	Peck, Stow & Wilcox.....	—
Double Blast Mfg. Co., Inc....	—	Pecora Paint Co.	—
Double-Duty Mfg. Co.	35	Pfeifer, Wm.	—
Dreis & Krump Mfg. Co.....37-39	—	Polk, R. L.	—
E		Prest-O-Lite Co., Inc.	—
Eaglesfield Ventilator Co.....	9		
F		Q	
Fanner Mfg. Co.	—	Quick Meal Stove Co.	39
Forest City Fdy. & Mfg. Co....	—	Quincy Pattern Co.	8
Floral City Heater Co.	6		
Fort Shelby Hotel	—		
Friedley-Voshardt Co.	35		
G		R	
Gerock Bros. Mfg. Co.	33	Reed Air Filter Co.....	—
H		Robinson, A. H., Co.	9
Harrington & King Perf. Co. 33	—	Robinson Furnace Co.	7
Hart & Cooley Co.	—	Rock Island Register Co.....	—
Henry Furnace & Fdy. Co....	4	Ross-Gould Co.	—
Hess-Snyder Co.	—	Royal Ventilator Co.	—
Hessler Co., H. E.	—	Rybolt Heater Co.	—
Homer Furnace Co.	—	Ryerson & Sons, Inc., Jos. T. —	—
Hyro Mfg. Co.	—		
I		S	
Independent Register & Mfg. Co.	9	Sheet Steel Trade Ex. Comm. —	—
Inland Steel Co.	—	Special Chemicals Co.	—
International Heater Co.	—	Standard Furn. & Supply Co..	—
J		Standard Ventilator Co.	35
		St. Louis Heating Co.	5
K		St. Louis Tech. Inst.	—
Keith Furnace Co.	—	Sturtevant Co.	—
Kernchen Co.	—	Success Heater Mfg. Co.	—
Kirk-Latty Co.	8		
L		T	
Lalanc & Grosjean Mfg. Co. —	—	Taylor Co., N. & G.....	—
Lamneck & Co., W. E.....	—	Technical Products Co.	42
Lamson & Sessions Co., The. —	—	Teela Sheet Metal Co.	8
Langenberg Mfg. Co.	—	The Thatcher Co.	11
Lennox Furnace Co.	—	Thomas & Armstrong Co.	—
Liberty Foundry Co.	—	Trachte Bros. Co., Inc.....	—
Linde Air Products Co.	—	Tuttle & Bailey Mfg. Co.....	—
Lupton's Sons Co., David.....	31	XXth Century Htg. & Vent. Co.	—
M		U	
		United States Register Co....	—
		Utica Heater Co.	5
N		V	
		Vedder Pattern Works	8
		Viking Shear Co.	39
O		W	
		Walworth Run Fdy. Co.....	—
		Warm Air Furnace Fan Co....	3
		Waterman-Waterbury Co.	—
		Western Steel Products Co....	6
		Wheeling Corr. Co.	—
		Wheeling Metal & Mfg. Co....	—
		Whitney Mfg. Co., W. A.....	—
		Whitney Metal Tool Co.....	37
		Wise Furnace Co.	4

Markets—Continued from page 34

NETTING, POULTRY		ROOFING	
Galvanized before weav-	ing	Best grade, slate surf. pre-	pared
Galvanized after weaving.	52 1/2-5%	Best talc surfaced.....	2 45
		Medium talc surfaced.....	2 00
		Light talc surfaced.....	1 30
		Red Rosin Sheeting, per ton	57 00
PASTE		SCREWS	
Asbestos Dry Paste:		Sheet Metal	
200-lb. barrel	\$16 00	7. 1/4x1/4, per gross.....	\$0 52
100-lb. barrel	8 75	No. 10, 1/4x3/16, per gross.	68
35-lb. pail	3 50	No. 14, 1/4x1/4, per gross...	89
10-lb. bag	1 10		
5-lb. bag	60		
2 1/2-lb. cartons.....	35		
PIPE		SHEARS, TINNERS' & MACHINISTS'	
Conductor		Viking	\$22 00
Cor. Rd., Plain Rd. or Sq.		Lennox Throatless	
Galvanized		No. 18	35%
Crated and nested (all	gauges)	Shear blades	10%
Crated and not nested	(all gauges)	(f. o. b. Marshalltown, Iowa.)	
	75-2 1/2%		
	70-15%		
Furnace Pipe		SHIELDS, REGISTER	
Double Wall Pipe and		No. 1 "Gem" floor.....	\$12 00 doz.
Fittings	50%	No. 2 "Gem" wall.....	6 00 doz.
Single Wall Pipe, Round			
Galvanized Pipe	50%		
Galvanized and Tin Fittings.			
	50%		
Lead		SHOES	
Per 100 lbs.....		Galv. 28 Gauge, Plain or cor-	
	\$12 50	rugated round flat crimp.....	60%
		26 gauge round flat crimp.....	45%
		24 gauge round flat crimp.....	15%
Stove Pipe		SNIPS, TINNERS'	
"Milcor" "Titelock" Uniform Blue		Clover Leaf	40 & 10%
Stove		National	40 & 10%
28 gauge, 5 inch U. C.		Star	50%
nested	11 50	Milcor	Net
28 gauge, 6 inch U. C.			
nested	12 25		
28 gauge, 7 inch U. C.			
nested	14 25		
30 gauge, 5 inch U. C.			
nested	10 50		
30 gauge, 6 inch U. C.			
nested	11 25		
30 gauge, 7 inch U. C.			
nested	13 25		
T-Joint Made up		SQUARES	
6-inch, 28 ga....per doz. \$		Steel and Iron.....	Net
	5 00	(Add for bluing, \$3 per doz. net.)	
All Zinc		Mitre	Net
No. 11, all styles.....		Try	Net
	60%	Try and Bevel.....	Net
POKERS, STOVE		Try and Mitre.....	Net
W'r't Steel, str't or bent,		Fox's	per doz. \$6 00
per doz.		Winterbottom's	10%
Nickel Plated, coil handles,			
per doz.			
	1 10		
POKERS, FURNACE		STOPPERS, FLUE	
Each		Common	per doz. \$1 10
	\$0 50	Gem, No. 1.....	per doz. 1 10
PULLEYS		Gem, flat, No. 3.....	per doz. 1 00
Furnace Tackle....per doz.			
per pair.....			
per gro.			
Furnace Screw (enameled)			
per doz.			
	75		
Ventilating Register		VENTILATORS	
Per gross.....		Standard.....	30 to 40%
Small, per pair.....			
Large, per pair.....			
	9 00		
	30		
	50		
PUTTY		WIRE	
Commercial Putty, 100-lb		Plain annealed wire, No. 8,	
Kits		per 100 lbs.....	\$3 05
	\$3 40	Galvanized barb wire, per	
		100 lbs.	3 90
		Wire Cloth—black painted,	
		12-mesh, per 100 sq. ft.....	1 65
		Cattle Wire—galvanized catch	
		weight spool, per 100 lbs.	3 65
		Galvanized Hog Wire, 80 rod	
		spool, per spool.....	3 15
		Galvanized Plain Wire, No.	
		9, per 100 lbs.....	3 40
		Stove Pipe, per stone.....	1 10
REDUCERS—Oval Stove Pipe		WRINGERS	
Per Doz.		No. 790, Guarantee	each \$5 10
7-6, 1 doz. in carton.....		No. 770, Bicycle	each 4 70
	\$2 25	No. 670, Domestic	each 4 35
		No. 110, Brighton	each 3 70
		No. 750, Guarantee	each 5 10
		No. 740, Bicycle	each 4 70
		No. 22, Pioneer	each 3 40
		No. 2, Superb	each 2 65
REGISTERS AND BORDERS—			
Baseboard, Floor and Wall.			
Cast Iron			
Steel and Semi-Steel.....			
Baseboard			
Wall			
Adjustable Ceiling Ventilators.			
	40%		
Register Faces—Cast and Steel			
Japanned, Bronzed and			
Plated, 4x6 to 14x14.....			
Large Register Faces—Cast,			
14x14 to 28x42.....			
Large Register Faces—Steel,			
14x14 to 28x42.....			
	65%		
RIDGE ROLL			
Galv., Plain Ridge Roll.			
b'dd			
Galv., Plain Ridge Roll			
crated			
Globe Finials for Ridge			
Roll			
	50%		

CHICAGO STEEL SLITTING SHEAR**LIGHT—POWERFUL
DURABLE**

Capacity 10 gauge sheets
Any Length or Width
Flat Bars 3/16x2"
Weight 22 pounds
Price \$12.50 Net
F. O. B. Chicago

Made of pressed steel and equipped with hold-down. Blades of highest grade crucible steel. Most indispensable high grade shears made. Equal to other shears selling at over twice the price. **ORDER YOURS TODAY.**

DREIS & KRUMP MFG. CO., 7404 Loomis St., Chicago



*The 12-Cylinder Ventilator
Used in Every State
in the Union.*

**SPECIFY ÆOLUS
VENTILATORS**

**ÆOLUS
FOR HOMES**

The home should be properly ventilated—few of them are. Here is a sales opportunity often overlooked by the average Sheet Metal Worker, but one which offers a lucrative business to those who take advantage of it.

Æolus-Dickinson Co.

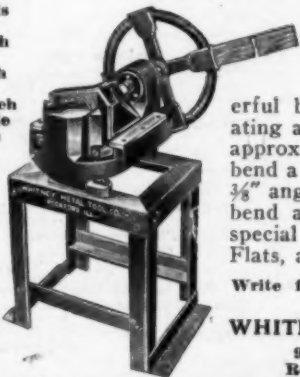
Vent. Makers Since 1888

3332-52 South Artesian Avenue
CHICAGO

Phone: Lafayette 1862-1863

**Angle Iron Bender No. 61
Ball Bearing**

Bends
a
3-inch
by
3-inch
by
3/4-inch
Angle
Iron



This Bender is hand operated, and has a powerful ball bearing screw, creating a pressure on the dies of approximately 60 tons. It will bend a 90 degree shape in 3x3x 3/8" angle iron. It will not only bend angle iron, but by using special jaws will bend Pipes, Flats, and Rounds.

Write for Catalog and Price List
on Entire Line

WHITNEY METAL TOOL CO.

93 FORBES STREET,
ROCKFORD, ILLINOIS



Torrid

Just as Good as a
"Torrid"

may be used as a reason for not supplying a genuine "Torrid" but it proves genuine "Torrid's" superiority.

**GEO. W. DIENER MFG. CO.
No 15
CHICAGO, ILL.**

Makers of fine Blow Torches and
Fire Pots.

CHICAGO SOLDER COMPANY,
4241 Wrightwood Ave., Chicago, U.S.A.
Gentlemen: Please send along your sample. I'm eager to test it now.

Name _____

Address _____

State _____

City _____

My Jobber _____

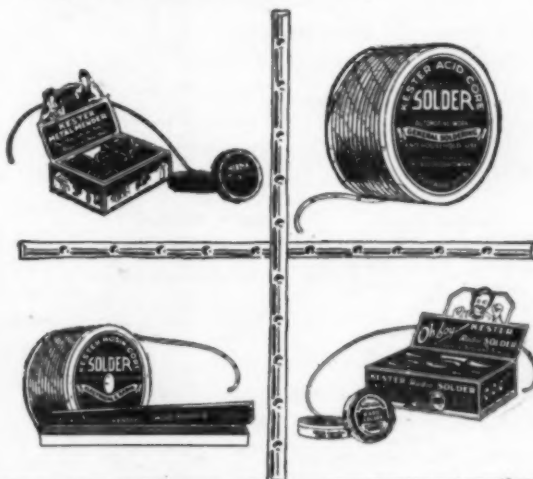
This coupon brings a free sample

of Kester Solder to prove these
"sales points"

THERE is but little sales effort necessary in making a Kester customer. Any one of the following features of Kester Solder are sufficient to make a quick sale, a clean profit and repeat business:

1. Kester Solder needs no separate flux—it carries its own scientific flux in tiny sockets within itself.
2. It requires only heat—a touch of Kester and a touch of heat makes any job complete.
3. It saves one-third of soldering time.
4. Eliminates the uncertain operation of separate fluxing.
5. Genuine solder made of pure virgin tin and lead.
6. Handy packages, one, five, ten and twenty pound spools.

To prove to yourself that Kester salespoints are facts that have built a substantial and profitable business for our dealers, we will send you a test sample free. Send the coupon today.



CHICAGO SOLDER COMPANY

4241 Wrightwood Avenue Chicago, U.S.A.

Originators and world's largest manufacturers
of Self-Fluxing Solder

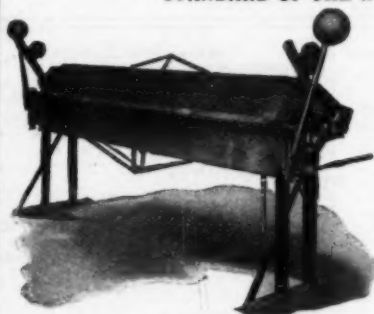
YOUR JOBBER CAN SUPPLY YOU

BUYERS' DIRECTORY

- Acetylene (Gas) Dissolved.**
Prest-O-Lite Co., Inc., New York, N. Y.
- Air Filters.**
Reed Air Filter Co., Louisville, Ky.
- Bale Ties.**
American Steel & Wire Co., Chicago, Ill.
- Blowers.**
Sturtevant Co., B. F., Boston, Mass.
- Bolts—Stove.**
The Kirk-Latty Co., Cleveland, Ohio
- Lamson & Sessions Co.,**
Cleveland, Ohio
- Brakes—Bending.**
Dreis & Krump Mfg. Co., Chicago, Ill.
- Brakes—Cornice.**
Dreis & Krump Mfg. Co., Chicago, Ill.
- Brass and Copper.**
Copper & Brass Research Association, New York
- Merchant & Evans Co.,**
Philadelphia, Pa.
- Cans—Garbage.**
Osborn Co., The J. M. & L. A., Cleveland, Ohio
- Castings—Malleable.**
Fanner Mfg. Co., Cleveland, Ohio
- Ceilings—Metal.**
Friedley-Voshardt Co., Chicago, Ill.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Wheeling Corrugating Co.,**
Wheeling, W. Va.
- Chaplets.**
Fanner Mfg. Co., Cleveland, Ohio
- Chimney Tops.**
Standard Ventilator Co., Lewisburg, Pa.
- Check Drafts.**
Teela Sheet Metal Co., Oshkosh, Wis.
- Cleaners—Furnace.**
Sturtevant Co., B. F., Boston, Mass.
- Cleaners—Suction.**
Sturtevant Co., B. F., Boston, Mass.
- Clinker Tongs.**
L. J. Mueller Furnace Co., Milwaukee, Wis.
- Clips—Roofing.**
Wm. Pfeiffer, New York, N. Y.
- Coal Chutes.**
Majestic Co., The, Huntington, Ind.
- Copper.**
Copper & Brass Research Association, New York
- Cornices.**
Friedley-Voshardt Co., Chicago, Ill.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Cut-offs—Rain Water.**
Milwaukee Corrugating Co., Milwaukee, Wis.
- Damper Accessories.**
Parker-Kalon Corp., New York, N. Y.
- Damper Clips.**
L. J. Mueller Furnace Co., Milwaukee, Wis.
- Charlestown, Mass.**
- Damper Regulators.**
Parker-Kalon Corp., New York, N. Y.
- Diffuser—Air Duct.**
Aeolus-Dickinson Co., Chicago, Ill.
- L. J. Mueller Furnace Co.,**
Milwaukee, Wis.
- Doors—Metal.**
Lupton's Sons Co., David, Philadelphia, Pa.
- Drive Screws—Hardened Metallic.**
Parker-Kalon Corp., 354 West 13th St., New York
- Eaves Trough.**
Barnes Zinc Products Co., Chicago, Ill.
- Berger Bros. Co.,**
Philadelphia, Pa.
- Berger Co., L. D.,**
Philadelphia, Pa.
- Lupton's Sons Co., David,**
Philadelphia, Pa.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- New Jersey Zinc Sales Co., The,**
New York, N. Y.
- Wheeling Corrugating Co.,**
Wheeling, W. Va.
- Elbows and Shoes—Conductor.**
Barnes Zinc Products Co., Chicago, Ill.
- Dieckmann Co., Ferdinand,**
Cincinnati, Ohio
- Double-Duty Mfg. Co.,**
Aurora, Ill.
- Lupton's Sons Co., David,**
Philadelphia, Pa.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Wood Faces—Cold Air.**
American Wood Register Co., Plymouth, Ind.
- Eaglesfield Ventilator Co.,**
Indianapolis, Ind.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Fences.**
American Steel & Wire Co., Chicago, Ill.
- Fittings—Conductor.**
Barnes Zinc Products Co., Chicago, Ill.
- Flue Thimbles.**
Milwaukee Corrugating Co., Milwaukee, Wis.
- Furnace Cement—Asbestos.**
Buckeye Products Co., The, Cincinnati, Ohio
- Connors Paint Mfg. Co., Wm.,**
Troy, N. Y.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Pecora Paint Co.,**
Philadelphia, Pa.
- Furnace Cement—Liquid.**
Technical Products Co., Pittsburgh, Pa.
- Furnace Cleaners.**
Sturtevant Co., B. F., Boston, Mass.
- Furnace Fans.**
Robinson Furnace Co., Chicago
- A. H. Robinson Company,**
Cleveland, Ohio
- Sturtevant Co., B. F., Boston, Mass.**
- Warm Air Furnace Fan Co., The,**
Cleveland, Ohio
- Furnace Rings.**
Milwaukee Corrugating Co., Milwaukee, Wis.
- Walworth Run Fdy. Co.,**
Cleveland, Ohio
- Furnaces—Gas.**
Calkins & Pearce, Columbus, Ohio
- Furnaces—Warm Air.**
Agricola Furnace Co., Gadsden, Ala.
- American Furnace Co.,**
St. Louis, Mo.
- American Foundry & Furnace Co.,**
Bloomington, Ill.
- Brillion Iron Works,**
Brillion, Wis.
- Calkins & Pearce, Columbus, Ohio**
- Colburn Heater Co.,**
Chicago, Ill.
- Floral City Heater Co.,**
Monroe, Mich.
- Forest City Fdy. & Mfg. Co.,**
Cleveland, Ohio
- Henry Furnace & Fdy. Co.,**
Cleveland, Ohio
- Hess-Snyder Co.,**
Massillon, Ohio
- Homer Furnace Co.,**
Coldwater, Mich.
- International Heater Co.,**
Utica, N. Y.
- Keith Furnace Co.,**
Des Moines, Ia.
- Lamneck Co., W. E.,**
Columbus, Ohio
- Langenberg Mfg. Co.,**
St. Louis, Mo.
- Lennox Furnace Co.,**
Marshalltown, Ia.
- Marshalltown, Ia.; Syracuse, N. Y.**
- Liberty Foundry Co.,**
St. Louis, Mo.
- Majestic Co., The,**
Huntington, Ind.
- Marshalltown Heater Co.,**
Marshalltown, Iowa
- May-Fiebeger Furnace Co.,**
Newark, Ohio
- Meyer Furnace Co., The,**
Peoria, Ill.
- Monitor Furnace Co.,**
Cincinnati, Ohio
- Mt. Vernon Furnace & Mfg. Co.,**
Mt. Vernon, Ill.
- Mueller Furnace Co., L. J.,**
Milwaukee, Wis.
- Robinson Furnace Co.,**
Chicago, Ill.
- Robinson Furnace Co., A. H.,**
Cleveland, Ohio
- Rybolt Heater Co.,**
Ashland, Ohio
- Security Stove & Mfg. Co.,**
Kansas City, Mo.
- Standard Furnace & Supply Co.,**
Omaha, Neb.
- St. Louis Heating Co.,**
St. Louis, Mo.
- Success Heater Mfg. Co.,**
Des Moines, Iowa
- Thomas & Armstrong Co.,**
London, Ohio
- Thatcher Co.,**
Chicago, Ill.
- XXth Century Heating & Ventilating Co.,**
Akron, Ohio
- Utica Heater Co.,**
Utica, N. Y.
- Waterman-Waterbury Co.,**
Minneapolis, Minn.
- Western Steel Products Co.,**
Duluth, Minn.
- Wise Furnace Co.,**
Akron, Ohio
- Garages—Metal.**
Milwaukee Corrugating Co., Milwaukee, Wis.
- The Thomas & Armstrong Co.,**
London, Ohio
- Trachte Brothers Co., Inc.,**
Madison, Wis.
- Gas (Acetylene) Dissolved.**
Prest-O-Lite Co., Inc., New York, N. Y.
- Gas (Nitrogen).**
Linde Air Products Co., New York, N. Y.
- Gas (Oxygen).**
Linde Air Products Co., New York, N. Y.
- Glass—Wire.**
Lupton's Sons Co., David, Philadelphia, Pa.
- Grilles.**
Diamond Mfg. Co., Wyoming, Pa.
- Harrington & King Perforating Co.,**
Chicago, Ill.
- Hart & Cooley Co.,**
New Britain, Conn.
- Tuttle & Bailey Mfg. Co.,**
Chicago, Ill.
- United States Register Co.,**
Battle Creek, Mich.
- Grilles—Store Front.**
Tuttle & Bailey Mfg. Co., Chicago, Ill.
- Guards—Machine and Belt.**
Harrington & King Perforating Co., Chicago, Ill.
- Handles—Roller.**
Berger Bros. Co., Philadelphia, Pa.
- Handles—Soldering Iron.**
Hyro Mfg. Co., New York, N. Y.
- Hangers—Eaves Trough.**
Berger Co., L. D., Philadelphia, Pa.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Heaters—Cabinet.**
Majestic Co., The, Huntington, Ind.
- Mueller Furnace Co., L. J.,**
Milwaukee, Wis.
- Waterman-Waterbury Co.,**
Minneapolis, Minn.
- Heaters—Gas.**
Calkins & Pearce, Columbus, Ohio
- Heaters—School Room.**
Floral City Heater Co., Monroe, Mich.
- International Heater Co.,**
Utica, New York
- Meyer Furnace Co., The,**
Peoria, Ill.
- L. J. Mueller Furnace Co.,**
Milwaukee, Wis.
- Standard Furnace & Supply Co.,**
Omaha, Neb.
- Waterman-Waterbury Co.,**
Minneapolis, Minn.
- Hooks—Conductor.**
Berger Co., L. D., Philadelphia, Pa.
- Hotels.**
Fort Shelby Hotel, Detroit, Mich.
- Humidifiers.**
Automatic Humidifier Co., Cedar Falls, Iowa
- L. J. Mueller Furnace Co.,**
Milwaukee, Wis.
- Robinson Furnace Co.,**
Chicago, Ill.
- Lath—Expanded Metal.**
Milwaukee Corrugating Co., Milwaukee, Wis.
- Machines—Crimping.**
Bertsch & Co., Cambridge City, Ind.
- Machinery—Culvert.**
Bertsch & Co., Cambridge City, Ind.
- Machines—Tinsmiths.**
Bertsch & Co., Cambridge City, Ind.
- Chicago Elbow Machine Co.,**
Oak Park, Ill.
- Dreis & Krump Mfg. Co.,**
Chicago, Ill.
- Marshalltown Mfg. Co.,**
Marshalltown, Iowa
- Osborn Co., The J. M. & L. A.,**
Cleveland, Ohio
- Peck, Stow & Wilcox Co.,**
Southampton, Conn.
- Ryerson & Son, Inc.,**
Jos. T., Chicago, Ill.
- Whitney Mfg. Co., W. A.,**
Rockford, Ill.
- Whitney Metal Tool Co.,**
Rockford, Ill.
- Mailing Lists.**
R. L. Polk Co., Detroit
- Ross-Gould Co.,**
St. Louis, Mo.
- Mandrels.**
Hyro Mfg. Co., New York, N. Y.
- Metals—Perforated.**
Diamond Mfg. Co., Wyoming, Pa.
- Harrington & King Perforating Co.,**
Chicago, Ill.
- Miters.**
Friedley-Voshardt Co., Chicago, Ill.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Miters—Eaves Trough.**
Barnes Zinc Products Co., Chicago, Ill.
- Lupton's Sons Co., David,**
Philadelphia, Pa.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Nails—Hardened Masonry.**
Parker-Kalon Corp., New York, N. Y.
- Nails—Wire.**
American Steel & Wire Co., Chicago, Ill.
- Nitrogen (Gas).**
Linde Air Products Co., New York, N. Y.
- Ornaments—Sheet Metal.**
Friedley-Voshardt Co., Chicago, Ill.
- Geroch Bros. Mfg. Co.,**
St. Louis, Mo.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Oxygen (Gas).**
Linde Air Products Co., New York, N. Y.
- Paint.**
Connors Paint Mfg. Co., Wm., Troy, N. Y.
- Pecora Paint Co.,**
Philadelphia, Pa.
- Patterns—Furnace & Stove.**
Cleveland Castings Pattern Co., Cleveland, Ohio
- Quincy Pattern Co.,**
Quincy, Ill.
- Vedder Pattern Works,**
Troy, N. Y.
- Pipe and Fittings—Furnace.**
Henry Furnace & Fdy. Co., Cleveland, Ohio
- Lamneck Co., W. E.,**
Columbus, Ohio
- Meyer & Bro. Co., F.,**
Peoria, Ill.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Mueller Furnace Co., L. J.,**
Milwaukee, Wis.
- Osborn Co., The J. M. & L. A.,**
Cleveland, Ohio
- Robinson Furnace Co.,**
Chicago, Ill.
- Standard Furnace & Supply Co.,**
Omaha, Neb.
- Pipe and Fittings—Stove.**
Meyer & Bro. Co., F., Peoria, Ill.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- Pipe—Conductor.**
Barnes Zinc Products Co., Chicago, Ill.
- Berger Bros. Co.,**
Philadelphia, Pa.
- Dieckmann Co., Ferdinand,**
Cincinnati, Ohio
- Friedley-Voshardt Co.,**
Chicago, Ill.
- Lupton's Sons Co., David,**
Philadelphia, Pa.
- Milwaukee Corrugating Co.,**
Milwaukee, Wis.
- New Jersey Zinc Sales Co., The,**
New York, N. Y.
- Wheeling Corrugating Co.,**
Wheeling, W. Va.
- Wheeling Metal & Mfg. Co.,**
Wheeling, W. Va.

CHICAGO STEEL CORNICE BRAKES

STANDARD OF THE WORLD



THE BEST BRAKE FOR ALL PURPOSES: Most Durable, Easiest Operated, Low in Price; Made in All Lengths and to Bend All Gauges of Metal. Over 23,000 in use.

WRITE FOR PARTICULARS

DREIS & KRUMP MFG. CO., 7404 Loomis Street, CHICAGO

WIRE

electrical, rope, barbed, plain, nails (bright

and coated), tacks, spikes, bale ties, hoops, springs, netting, wire fences, steel posts, steel gates, trolley wire, rail bonds, flat wire, cold rolled strip steel, piano wire, round and odd-shape wire, screw stock, concrete reinforcement. Aerial tramways.

Illustrated books describing uses, FREE

American Steel & Wire Company
Sales Offices: Chicago, New York and All Principal Cities

Books

We can supply you with any book published for the Sheet Metal Worker, Warm Air Heater Installer or Automobile Radiator Repairer.

Tell Us
to send you a copy of our
10 page book catalog

**AMERICAN ARTISAN
—AND—
HARDWARE RECORD**

620 South Michigan Ave.
Chicago, Ill.

Traveling East or West

A restful night on beautiful Lake Erie—to or from Niagara Falls, will add enjoyment to your trip.

Palatial steamers—Unlimited facilities, including large airy state-rooms, excellent dining room service.

Daily May 1st to November 14th—Each Way Every Night between

Cleveland and Buffalo

Leaving 9:00 p. m., arriving 7:30 a. m. (Eastern Standard Time)

Write for new Steamer Schedule between Cleveland and Buffalo via ERIE during July and August

Connections at Buffalo for Niagara Falls, Eastern and Canadian points. Connections at Cleveland for Cedar Point, Put-in-Bay, Toledo, Detroit and points West.

Our new 32-page Tourist Guide with complete information and maps will be mailed free—on request.

Ask your ticket agent or tourist agency for tickets via C & B Line. Your rail ticket is good on our steamers.

The Cleveland and Buffalo Transit Co.
Cleveland, Ohio

FARE \$5.50

New Auto Rate \$5.00 and up

VESUVIUS BLOW TORCHES

in pint or quart sizes.

With quickly removable soldering iron hooks.

Vesuvius Blow Torches are made of brass or non-corrosive oxydized terne plate. The latter is particularly recommended for hard usage.

Write for prices and illustrated circular today



For Gasoline

QUICK MEAL STOVE COMPANY

Div. American Stove Company

825 Chouteau Ave.

St. Louis, Mo.

50-INCH FORMING ROLL

This Forming Roll is built in all standard sizes, with our Patented Opening Device by means of which it is opened and closed in a few seconds.

We build a complete line of Shears and punches, all sizes, for hand or belt power.

Write for Catalog "R"
BERTSCH & CO., Cambridge City, Ind.



Send for catalog today

VIKING SHEAR

Compound LEVER Handle—Removable Blades

A child can work them

VIKING SHEAR CO., Erie, Pa.

BUYERS' DIRECTORY

Posts—Steel Fence.
American Steel & Wire Co.,
Chicago, Ill.

Punches.
Bertsch & Co.,
Cambridge City, Ind.
Peck, Stow & Wilcox Co.,
Southington, Conn.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Whitney Mfg. Co., W. A.,
Rockford, Ill.
Whitney Metal Tool Co.,
Rockford, Ill.

Punches—Combination Bench and Hand.
Hyro Mfg. Co., New York, N. Y.
Whitney Metal Tool Co.,
Rockford, Ill.
Whitney Mfg. Co., W. A.,
Rockford, Ill.

Punches—Hand.
Hyro Mfg. Co., New York, N. Y.
Whitney Metal Tool Co.,
Rockford, Ill.
Whitney Mfg. Co., W. A.,
Rockford, Ill.

Putty—Stove.
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.
Pecora Paint Co.,
Philadelphia, Pa.

Quadrants—Damper.
L. J. Mueller Furnace Co.,
Milwaukee, Wis.
Parker-Kalon Corp.,
New York, N. Y.

Radiator Cabinets.
The Hart & Cooley Mfg. Co.,
Hartford, Conn.
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.

Radiators—Shields.
The Thomas & Armstrong Co.,
London, Ohio

Ranges—Combination Gas & Coal.
Quick Meal Stove Co.,
St. Louis, Mo.
Thatcher Co.,
Newark, N. J.

Ranges—Gas.
Quick Meal Stove Co.,
St. Louis, Mo.

Registers—Warm Air.
Eaglesfield Ventilator Co.,
Indianapolis, Ind.
Hart & Cooley Co.,
New Britain, Conn.
Henry Furnace & Fdy. Co.,
Cleveland, Ohio
Independent Register & Mfg. Co.,
Cleveland, Ohio
Lamneck & Co., W. E.,
Columbus, Ohio
Majestic Co., The,
Huntington, Ind.
Moyer & Bro. Co., F. Peoria, Ill.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
Maeller Furnace Co., L. J.,
Milwaukee, Wis.
Robinson Furnace Co.,
Chicago, Ill.
Rock Island Register Co.,
Rock Island, Ill.
Standard Furnace & Supply Co.,
Omaha, Neb.
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.
United States Register Co.,
Battle Creek, Mich.
Walworth Run Fdy. Co.,
Cleveland, Ohio

Registers—Wood.
Eaglesfield Ventilator Co.,
Indianapolis, Ind.
L. J. Mueller Furnace Co.,
Milwaukee, Wis.
United States Register Co.,
Battle Creek, Mich.

Repairs—Stove and Furnace.
Hessler Co., H. E.,
Syracuse, N. Y.
Northwestern Stove Repair Co.,
Chicago, Ill.

Ridging.
American Rolling Mill Co.,
Middletown, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Rivets—Stove.
The Kirk-Latty Co.,
Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.

Roasters.
Lalance & Grosjean Mfg. Co.,
Chicago, Ill.

Rods—Stove.
The Kirk-Latty Co.,
Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio

Rolls—Forming.
Bertsch & Co.,
Cambridge City, Ind.

Roofing Cement.
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.
Pecora Paint Co.,
Philadelphia, Pa.

Roof—Flashing.
Hessler Co., H. E., Syracuse, N. Y.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Roofing—Iron and Steel.
American Rolling Mill Co.,
Middletown, Ohio
Friedley-Voshardt Co.,
Chicago, Ill.

Roofing—Tin.
Taylor Co., N. & G.,
Philadelphia, Pa.
Wheeling Corrugating Co.,
Wheeling, W. Va.

Roofing—Zinc.
New Jersey Zinc Sales Co., The,
New York, N. Y.

Rubbish Burners.
Hart & Cooley Co.,
New Britain, Conn.

Sal-Ammoniac.
Special Chemicals Co.,
Waukegan, Ill.

Schools—Sheet Metal Pattern Drafting.
St. Louis Technical Institute,
St. Louis, Mo.

Schools—Warm Air Heating.
National Heatcraft Institute,
Peoria, Ill.
St. Louis Technical Institute,
St. Louis, Mo.

Screws—Hardened Metallic Drive.
Parker-Kalon Corp.,
354 West 13th St., New York

Screws—Hardened Self-Tapping.
Parker-Kalon Corp.,
354 West 13th St., New York

Screens—Perforated Metal.
Harrington & King Perforating
Co.,
Chicago

Shears—Hand and Power.
Double-Duty Mfg. Co., Aurora, Ill.
Marshalltown Mfg. Co.,
Marshalltown, Iowa
Peck, Stow & Wilcox Co.,
Southington, Conn.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Viking Shear Co.,
Erie, Pa.

Sheets—Steel—Lead.
Wheeling Metal & Mfg. Co.,
Wheeling, W. Va.

Sheet Metal Screws—Hardened.
Parker-Kalon Corp.,
354 West 13th St., New York

Sheets—Black and Galvanized.
American Rolling Mill Co.,
Middletown, Ohio
Central Alloy Steel Corp.,
Massillon, Ohio
Inland Steel Co.,
Chicago, Ill.
Merchant & Evans Co.,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Taylor Co., N. & G.,
Philadelphia, Pa.
Wheeling Corrugating Co.,
Wheeling, W. Va.

Sheets—Iron.
American Rolling Mill Co.,
Middletown, Ohio
Central Alloy Steel Corp.,
Massillon, Ohio
Merchant & Evans Co.,
Philadelphia, Pa.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.

Roofing—Steel—Lead Coated.
Wheeling Metal & Mfg. Co.,
Wheeling, W. Va.

Sheets—Tin.
Merchant & Evans Co.,
Philadelphia, Pa.
Taylor Co., N. & G.,
Philadelphia, Pa.

Sheets—Zinc.
New Jersey Zinc Sales Co., The,
New York, N. Y.

Shingles and Tiles—Metal.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
Wheeling Corrugating Co.,
Wheeling, W. Va.
Wheeling Metal & Mfg. Co.,
Wheeling, W. Va.

Shingles—Zinc.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Sifters—Ash.
Diener Mfg. Co., G. W.,
Chicago, Ill.

Sky Lights.
Lupton's Sons Co., David,
Philadelphia, Pa.
Michigan Fireproof Skylight Co.,
Benton Harbor, Mich.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Snips.
Peck, Stow & Wilcox Co.,
Southington, Conn.

Solder.
Chicago Solder Co.,
Chicago, Ill.
Double-Duty Elbow Co.,
Aurora, Ill.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Soldering Furnaces.
Burgess Soldering Furnace Co.,
Columbus, Ohio
Clayton & Lambert Mfg. Co.,
Detroit, Mich.
Diener Mfg. Co., G. W.,
Chicago, Ill.
Double Blast Mfg. Co.,
North Chicago, Ill.
Quick Meal Stove Co.,
St. Louis, Mo.

Soldering Supplies.
Double-Duty Elbow Co.,
Aurora, Ill.
Special Chemicals Co.,
Waukegan, Ill.

Specialties—Hardware.
Diener Mfg. Co., G. W.,
Chicago
Hessler Co., H. E., Syracuse, N. Y.

Stars—Hard Iron Cleaning.
Fanner Mfg. Co.,
Cleveland, Ohio

Statuary.
Friedley-Voshardt Co.,
Chicago, Ill.
Gerock Bros. Mfg. Co.,
St. Louis, Mo.

Stove Pipe Reducers.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Stoves—Camp.
Quick Meal Stove Co.,
St. Louis, Mo.

Stoves—Gasoline and Oil.
Quick Meal Stove Co.,
St. Louis, Mo.

Stoves and Ranges.
Quick Meal Stove Co.,
St. Louis, Mo.
Thatcher Co.,
Newark, N. J.

Tacks, Staples, Spikes.
American Steel & Wire Co.,
Chicago, Ill.

Tinplate.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Taylor Co., N. & G.,
Philadelphia, Pa.

Tools—Tin Smith's.
Bertsch & Co.,
Cambridge City, Ind.
Chicago Elbow Machine Co.,
Oak Park, Ill.
Double-Duty Mfg. Co.,
Aurora, Ill.
Dries & Krump Mfg. Co.,
Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Marshalltown Mfg. Co.,
Marshalltown, Iowa
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Peck, Stow & Wilcox Co.,
Southington, Conn.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Viking Shear Co.,
Erie, Pa.
Whitney Mfg. Co., W. A.,
Rockford, Ill.
Whitney Metal Tool Co.,
Rockford, Ill.

Torches.
Burgess Soldering Furnace Co.,
Columbus, Ohio
Clayton & Lambert Mfg. Co.,
Detroit, Mich.
Diener Mfg. Co., G. W.,
Chicago, Ill.
Quick Meal Stove Co.,
St. Louis, Mo.

Trade Extension.
Copper & Brass Research As-
sociation, New York, N. Y.
Sheet Steel Trade Extension
Committee,
Pittsburgh, Pa.

Trimmings—Stove.
Fanner Mfg. Co.,
Cleveland, Ohio

Ventilators.
Aeolus Dickinson Co.,
Chicago, Ill.
Akrat Ventilators, Inc.,
Chicago, Ill.
Arex Company,
Chicago, Ill.
Berger Bros. Co.,
Philadelphia, Pa.
Friedley-Voshardt Co.,
Chicago, Ill.
Kernchen Co.,
Chicago, Ill.
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
Royal Ventilator Co.,
Philadelphia, Pa.
Standard Ventilator Co.,
Lewisburg, Pa.
Sturtevant Co.,
Boston, Mass.

Ventilators—Ceiling.
Eaglesfield Ventilator Co.,
Indianapolis, Ind.
Hart & Cooley Co.,
New Britain, Conn.
Henry Furnace & Fdy. Co.,
Cleveland, Ohio
Tuttle & Bailey Mfg. Co.,
New York
Sturtevant Co., B. F., Boston, Mass.

Windows—Steel.
Lupton's Sons Co., David,
Philadelphia, Pa.

Wire—Electrical.
American Steel & Wire Co.,
Chicago, Ill.

Wire Hoops.
American Steel & Wire Co.,
Chicago, Ill.

Wire Rope.
American Steel & Wire Co.,
Chicago, Ill.

Zinc.
Merchant & Evans Co.,
Philadelphia, Pa.
New Jersey Zinc Co., The,
New York, N. Y.

WANTS AND SALES

Any yearly subscriber to AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired.

BUSINESS CHANCES

Lightning Rods—Dealers who are selling Lightning Protection will make money by writing us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield Wisconsin.

Wanted—A man about the age of 30 to 40 years with \$3,000 to \$5,000 capital to buy an interest in a well established sheet metal and roofing concern. Must be capable of estimating plans and to take charge of men in shop. A man preferred that is a hustler and anxious to get somewhere in this world. A city with a population of approximately 75,000 in Southern Michigan. If interested let us hear from you at once. Address B-89, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 6-3t.

For Sale—Sheet Metal shop, good stock of goods, good tools and machines, residence 10 rooms—modern, one ton truck—Chevrolet. Shop 30x36, garage 20x24, upper story for storage. All on 1 lot 50½x165. City of 5000 population. Competition 1 small shop. Cash or terms. Address—B-77, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 3-3t.

Would you like to own a fully equipped tin shop in a town about 2,500. Borden milk people are starting one of their largest plants here this year. Good chance for combination shop, as sewerage has just been completed. Also have residence if you want to buy. No better climate anywhere. Address H. D. Holttam, Macon, Miss. 6-3t.

For Sale—Sheet metal shop in good growing north Idaho town, about 4,500 inhabitants, university, and good country to draw from. Business good. Lot 50x125, with building, stock and tools. Price \$4,500 cash. Good reasons for selling. Address J. A. Anderson, % Moscow Sheet Metal Works, Moscow, Idaho. 5-3t.

Wanted—Small hardware, or hardware and combination shop in town above 1,000 population. Preferably in northern Iowa or southeastern Minnesota. State your best cash price and give full particulars in first letter. Address—B-79, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 4-3t.

For Sale—Good plumbing and heating business in central Illinois. Good reason for selling (on account of health). Address—B-75, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 3-3t.

For Sale—Warm Air Heating and sheet metal shop. Extra good set of tools including brake and circular shears. Town 2,000 population. One other shop. Good competition. \$1,000 will handle. Write Ray M. Sharp, Bedford, Iowa. 6-3t.

Trade—Can anyone use 200 6x8 cans with covers? Second hand steam and wall radiator for used furnace or bar folder and other machines. Address Chas. Hahn, 5148 Irving Park Blvd., Chicago, Illinois. 5-3t.

BUSINESS CHANCES

For Sale—One-ton Dodge-Graham truck, canopy top, 1927 model, driven 3,500 miles, and in first-class condition. Also No. 2 Imperial welding outfit. Address B-90, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 6-3t.

For Sale—Complete, sheet metal shop. Reo Speed wagon and residence. Address—B-80, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 4-3t.

Wanted—Hardware stock, or to know of location for new stock. Preferably within seventy-five miles of Detroit. Must be live town of 5,000 or larger. Address Box 147, Port Huron, Michigan. 5-3t.

For Sale—Hardware stock, fixtures and tools at Wenona, Illinois. Wish to retire from business. A bargain. Address—G. W. Kreider, Wenona, Illinois. 4-3t.

Wanted—A first class sheet metal worker with small amount of capital to operate my shop for rent. Address H. W. Gazlay, Dayton, Texas. 6-3t.

SITUATION WANTED

Situation Wanted—A first class, all around mechanic, layout man and foreman desires position. Cornice, skylight, blow pipe, ventilation, roofing, heating, etc. At present foreman of large shop in Eastern Ohio. Hard worker and steady. Please state wages and hours. Address —B-76, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 3-3t.

Situation Wanted—By an A1 sheet metal worker and layout man; 30 years' experience; age 46; sober; steady; married and hard worker. Prefer shop work. Experience covers every phase of sheet metal and tin work. Please state wages and hours. Address B-86, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 5-3t.

Situation Wanted—Permanent position by capable sheet metal worker, pattern cutter and A1 furnace man. Eighteen years' experience; married; good habits; Missouri or states adjoining preferred. Please state full particulars and wages in first letter. Address B-81, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 4-3t.

Situation Wanted—About August 1st, sheet metal worker of wide experience will be free. First class shop man and pattern cutter. Neat and accurate mechanic and competent to act as foreman or assistant if required. Good health and habits. Address—B-73, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 3-3t.

Situation Wanted—By a first-class plumber; can also do heating and tin-work; can estimate, read blue prints or run shop. Am steady and reliable and want just such a job. Illinois or Iowa preferred, but will go anywhere. State full particulars. Address B-85, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 5-3t.

Situation Wanted—Heating engineer with ten years' sales experience in hardware, sheet metal products, furnaces and supplies is open for position. Prefer to sell Steel furnaces. Give full particulars in answering. Address—B-74, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 3-3t.

Situation Wanted—By Tinner and Furnace Installer. Can do inside and outside work. 25 years at the trade. Can do anything that comes in country tin-shop. Also help in hardware store. Address Tinner, 661 Manomlin Avenue, St. Paul, Minnesota. 3-3t.

Situation Wanted—Tinner and plumber with 25 years' experience in warm air and hot water furnaces, and hot water heating. Country town preferred. Address Frank Van, Granite Falls, Minnesota. 6-3t.

Situation Wanted—By first class sheet metal worker, warm air furnace installer. Plumbing and hot water heating. Address B-83, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 5-3t.

Situation Wanted—A first class sheet metal worker and furnace man who also understands the making of electric signs. Southwestern states preferred. Address—Box 2417, Los Angeles, California. 4-3t.

SITUATION WANTED

Situation Wanted—As tinner or tinner and plumber. I am also a good furnace man and auto radiator man. Job must be steady the year round. I am a married man. Can furnish best of references. State wages and particulars in first letter. Address Lee O. Bailey, Parkston, South Dakota. 6-3t.

Situation Wanted—By metal worker and furnace installer, inside or outside. Middle west preferred. Age 32, married and sober. Must be steady. State wages and hours in first letter. Address W. E. Hull, 409 Military, Dodge City, Kansas. 6-3t.

HELP WANTED

Wanted—At once. Combination plumber and tinner. A man that knows his business. Both in and outdoor work. Must be steady. This is a year around job for right man. No others need apply. Married man preferred. This is a small country town in Wisconsin. Address B-84, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 5-3t.

Wanted—A first-class sheet metal worker; knowledge of plumbing preferred. One capable of doing anything that comes in an ordinary shop, gutter, blowpiping, roofing, etc. Must be capable of doing good work in reasonable length of time. Give references, experience and wages. Address B-82, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 4-3t.

Salesman Wanted—High grade man for the state of Wisconsin to sell established quality line of furnace fittings and registers. Must be experienced and able to show a successful road record. Splendid opportunity to man who can fill proposition. Address B-88, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 6-2t.

Wanted—Man who can do eaves spouting, furnace work and plumbing. Town of 2,000 in lower Michigan. Must be strictly temperate. Protestant preferred. Wages 60c per hour. Steady work the year around for the right man, with chance for advancement. Address—B-78, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 4-3t.

Salesman Wanted—For South Dakota territory by an old established stove and furnace manufacturer. Splendid commission proposition to the man who has confidence in his ability and can produce results. Address B-87, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 6-2t.

Wanted—Combination tinner and plumber with some sales ability. Must help clerk Wednesday and Saturday nights. State your price per week for a 52 week per year job. References required. Address—Wm. Wilker, Wyoming, Iowa. 3-3t.

Wanted—Good all-around tinner for furnace and sheet metal work. Must be steady and have good habits. State wages and experience. Steady work with advancement for right party. Address Buehrens Tin Shop, Dorchester, Wisconsin. 6-3t.

Wanted—Competent sheet metal worker to take charge of sheet metal department of a combination shop. Would lease to some ambitious mechanic who wants to make better than wages. Address Box 724, Lancaster, Calif. 4-3t.

Wanted—Tinner, who can also do plumbing and general repair jobs on farms. One who is willing to work on percentage basis. No capital, tools or truck required. Address Grant Park Hdwe. Co., Grant Park, Illinois. 5-3t.

Wanted—Two sheet metal workers. Union shop. Only first class mechanics need apply. Address—Herbert Bartholomew, 307 Carroll Street, Elmira, New York. 4-3t.

Wanted—A first class furnace installer. Steady job year around for man who can qualify. High wages paid. Address Holland Furnace Co., Sheboygan, Wisconsin. 5-3t.

TINNERS' TOOLS

Wanted—Second-hand tinner's tools and machines. Write and state lowest prices for cash. Address C. S. Johnson, Dell Rapids, South Dakota. 4-3t.

BOOKS

The Ventilation Handbook, by Charles L. Hubbard. A practical book designed to cover the principles and practice of ventilation as applied to furnace heating; ducts, flues and dampers for gravity heating; fans and fan work for ventilation and hot blast heating by means of a comprehensive series of questions, answers and very plain descriptions easy to understand. Price \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Manual of Automotive Radiator Construction and Repair, by F. L. Curfman and T. H. Leet—Anyone interested in Radiator Repairing will find the 185 pages of practical instructions and the 120 illustrations showing actual construction and repairing a big help. In a condensed manner some four to five thousand answers to questions are given. It is thoroughly practical as both authors are men of wide experience in this work. Printed in large, easy to read type. Measures 5 1/4 x 9 inches. Price \$2.50. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Exhaust and Blow Piping, by Hayes—Exhaust and Blow Piping has had an unusually big demand. A fresh supply is now off the press and is in our hands for immediate delivery. It has an invaluable treatise on the planning, cost, estimation and installation of fan piping in all its branches giving all necessary guidance in fan work blower and separator construction. 159 pages, 6x8. 51 figures. Cloth. \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Sheet Metal Duct Construction, by Neubecker—A treatise on the construction and erection of heating and ventilating ducts, including the cutting and forming of the metal, the laying out of the elbows, etc. A practical expert wrote this book and you'll find that it covers the subject thoroughly. By William Neubecker. Bound in cloth, 194 pages, 217 illustrations. Size 5 1/4 x 8 1/4 inches. Price \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

SPECIAL NOTICES

The Rate for Special Notices
— displayed want ads —
\$3.00 per inch per insertion.

PATENTS

HUBERT E. PECK
Patent Attorney

Barrister Bldg., WASHINGTON, D. C.



AREX

Original
Siphonage
Ventilator

The
Power
Fans
Only Rival!

200,000 Perfect
Installations!

Write for prices today

AREX COMPANY 1581 Conway Bldg.
CHICAGO

SPECIAL NOTICES

SALESMEN WANTED

Large successful stove manufacturer of a complete line of coal, wood, and gas ranges, cook stoves, heaters and parlor heaters, has still several territories open. Low manufacturing and material costs enable us to meet any competition. Patterns all of latest design. Will consider only experienced men who can show successful records. Address W-32, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 4-31.

SITUATION WANTED

Either sales or purchasing. Am experienced in sheet steel, jobbing and metal ceilings, understand blueprints and estimating. Acquainted with the trade in Chicago and surrounding territory. Address W-33, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 6-31.

FOR SALE

A good business proposition for the right party. My tinning, plumbing and retail business; sales and display room, 24x106 feet; tinning and plumbing shop, 20x70 feet; rent reasonable; have long time lease. Will sell half interest or all to right party. Well equipped, well established and well located. Am doing a large business for a city of four thousand population. I have two tanners, one helper, one plumber and myself working at present time. I have several hundred dollars of work I can turn to a mechanic and a square shooter—no other need apply. I have the leading business in these lines of our city: Franchise for Williams Oil-O-Matic Oil Burner and Farquhar Steel Warm Air Furnaces. New process oil stoves and a full line of Charnel house paints. If you are a hustler you can qualify for this place. Address, Chas. M. Eades, 17 Vine Street, North East, Pa. 6-11.

AKRAT

Pat. Applied For

SIPHONAGE VENTILATOR
Simple in design—Accurate in detail.
EFFICIENT IN EXHAUST

Write for prices.

AKRAT VENTILATORS, INC.
1191 Builders Bldg. CHICAGO

SPECIAL NOTICES

Manufacturers
of
Warm Air Heaters

HERE'S the salesman
you're looking for.

He can help you in that sales drive that you are putting on—he gets results—he knows the game—he knows the trade and he is well known and respected by thousands of live, high class warm air heater installers throughout the country and especially in the middle west and west.

He has called on the trade and sold warm air heaters for many years—yet he's an up-to-date salesman who works every week of the year—rain or shine.

This salesman's name is
AMERICAN ARTISAN

and you can secure his
services at once.

Write today and get complete details concerning his ability to work for you and with your regular salesmen.

CLEAN HEAT
WHEN YOU USE

INSALUTE
LIQUID PORCELAIN
ADHESIVE CEMENT
FIREPROOF ACIDPROOF OILPROOF

DOUBLE SEALS EVERY JOINT
APPLIED LIKE PAINT
OVER ASBESTOS CEMENT

MAKES JOINTS
GAS-TIGHT
WITHOUT RESET-
TING FURNACE

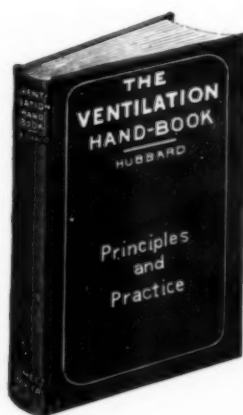
WITHSTANDS
WHITE HEAT

TECHNICAL PRODUCTS CO.
116 Sheridan Square Pittsburgh, Pa.

DISTRIBUTORS—**FOLLANSBEE BROS. CO.**
PITTSBURGH, PA.

TRIAL
OFFER
An 8-lb. can
of
INSALUTE
(furnace seal-
ing paint)
for \$2.00

THOUSANDS have perfected their training and increased their efficiency and earnings by reading these *easy-to-read* books on SHEET METAL WORK

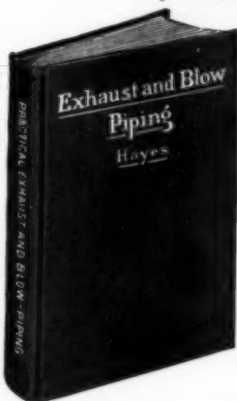


THE VENTILATION HANDBOOK A PRACTICAL book designed to cover the principles and practice of ventilation as applied to furnace heating; ducts, flues and dampers for gravity heating; fans and fan work for ventilation and hot blast heating by means of a comprehensive series of questions, answers and very plain descriptions easy to understand. By Charles L. Hubbard.

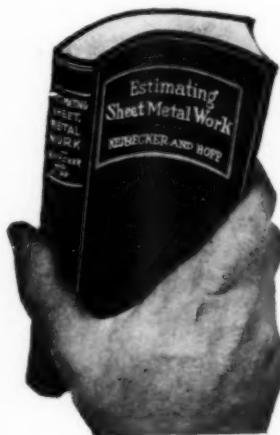
Price.... **\$2.00**

HAYES PRACTICAL EXHAUST AND BLOW PIPING

EXHAUST and Blow Piping has had an unusually big demand. A fresh supply is now off the press and is in our hands for immediate delivery. It has an invaluable treatise on the planning, cost, estimation and installation of fan piping in all its branches, giving all necessary guidance in fan work blower and separator construction. 159 pages, 5 x 8. 51 figures. By Hayes. Cloth



\$2.00



ESTIMATING SHEET METAL WORK

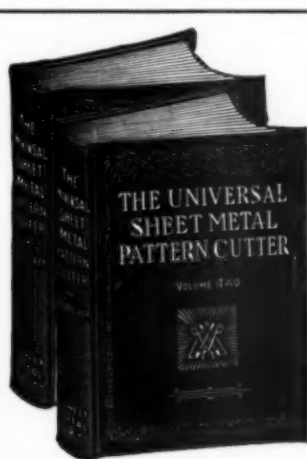
ANOTHER good book by Wm. Neubecker and A. Hopp. This is a new edition. A manual of practical self-instruction in the art of pattern drafting and construction work in light and heavy - gauge metal, including skylights and roofing, cornice work, etc. 417 pages; 4 1/2 x 7 in.; 215 figures. Cloth. Price

\$3.00

THE NEW METAL WORKER PATTERN BOOK

IT contains solutions of individual pattern problems in every department of sheet metal work, giving the complete methods of laying out all forms of work. It covers every detail from the selection of tools, through Linear and Geometrical Drawing, to development of Difficult Problems by Triangulation. This revised edition contains a series of automobile patterns. These include laying out guards, fenders, cowls, skirts, hoods, etc. It has 514 pages, 895 illustrations and diagrams, measures 9x12 inches and is cloth bound. Price

\$6.00



Every Sheet Metal worker should own this 2 Volume Encyclopedia of Sheet Metal Working

THE most practical and useful treatises on the subject.

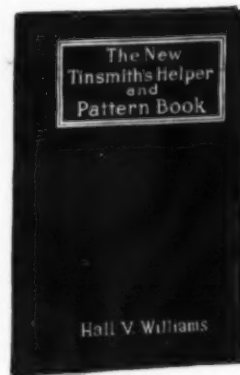
Work of all the branches of the trade and the broadest scope of details are found—inside and outside work—small jobs and the most complicated are shown, explained and profusely illustrated.

The first volume deals with all types and kinds of inside small and large sheet metal work.

The second volume deals with the more advanced branches of sheet metal work, in fact is largely devoted to the architectural end of the business. It consists of 400 double column pages and is illustrated with 711 engravings showing all methods under treatment, as well as perspective views of the subjects of the patterns, and other demonstrations in their finished state. It includes drawing, full sized detailing and lettering, development and construction of all forms of sheet metal construction work.

The volumes are bound in heavy cloth and each measures 9x12 in. Each contains over 380 pages and 680 original drawings. Price each.....

\$7.50



THE NEW TINSMITH'S HELPER AND PATTERN BOOK

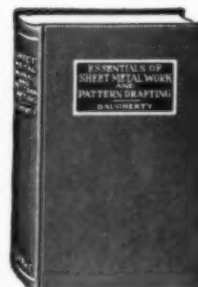
A NEW edition of one of the most popular books on tin-smithing and elementary sheet metal work. The contents of this new edition are new excepting the chapter on Mensuration, which has been re-arranged and amplified, and possibly some fifty pages of problems and tables which are classified to the phase of the work they cover. This book covers simple geometry and every phase of modern pattern cutting, from the making of every type of Seam, Lap and Joint, to Conical Problems and Tinware, Elbows, Piping, Ducts, Gutters, Leaders, Cornice and Skylight Work and Furnace Fittings. 352 pages, 247 figures and 165 tables, flexible leather bound and measures 4 1/2 x 5 inches. By Hall V. Williams. Price.....

\$3.00

ESSENTIALS OF SHEET METAL WORK AND PATTERN DRAFTING

A BOOK produced by the combined efforts of L. Broemel and the late Professor J. S. Daugherty, instructor in Sheet Metal Work at the Carnegie Institute of Technology. Pattern drafting is its biggest feature; not only tells how to make the pattern, but how to develop it with modern machines and tools; gives valuable assistance on soldering, brazing, welding, crimping, beading, straight, circular and irregular cutting. Bound in leatherette; 500 pages; more than 400 pen drawings and illustrations. Price

\$2.00



Books Wanted

AMERICAN ARTISAN, 620 S. Michigan Ave. Chicago, Ill.

For the enclosed \$..... send the books ordered and enter following subscription (or renewal.)

Name

Address

NOTE

Deduct 10% from TOTAL amount of order when subscription is included with order for books.



MEN!

It is MEN who produce HANDY furnace pipe and fittings. MEN who are working under the most satisfactory conditions and at rates of pay that help them to consider themselves MEN.

Because we do employ MEN, when we could reduce production costs considerably by using girls and women in some of our operations.

**OUR COSTS ARE GREATER
BUT OUR PRICES ARE NOT!**

and you are assured of the best of materials and workmanship.

F. MEYER & BRO. CO.

PEORIA, ILLINOIS

25

11

1